Washington's Water Quality Management Plan to Control Nonpoint Source Pollution

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The Nonpoint Plan

This plan has been a cooperative effort between the following agencies and groups:

Department of Agriculture
Department of Community, Trade and Economic Development
Conservation Commission
Washington State University, Cooperative Extension
Department of Ecology
Department of Fish and Wildlife
Department of Health
Interagency Committee for Outdoor Recreation
Department of Natural Resources
Parks and Recreation Commission
Puget Sound Action Team
Department of Transportation

These agencies will also be implementing the actions identified in the plan.

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Washington's Nonpoint Source Management Plan

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ABBREVIATIONS FOR AGENCIES & ORGANIZATIONS

Short	Long
AGC	Associated General Contractors
CC	Washington State Conservation Commission
CE	Washington State University Cooperative Extension
Cities	Cities of Washington (represented by Association of
	Washington Cities)
COE	US Army Corp of Engineers
CORE 4 Program	Encouragement of conservation buffers, conservation tillage,
	nutrient management, and pest and disease management.
Counties	Counties of Washington (represented by Washington
	Association of Counties)
CRAB ·	Washington State County Roads Administration Board
DCTED, CTED	Washington State Department of Community, Trade and
	Economic Development
DFW, WDFW	Washington State Department of Fish and Wildlife
DNR	Washington State Department of Natural Resources
DOH, Health	Washington State Department of Health
DOT	Washington State Department of Transportation
ECY	Washington State Department of Ecology
EPA, US EPA	US Environmental Protection Agency
ESD	Educational Service District
FSA	Farm Services Agency
GCEE	Washington Governor's Council on Environmental Education
IAC	Washington State Interagency Committee for Outdoor
	Recreation
NMFS	National Marine Fisheries Service
NRCS	Natural Resources Conservation Service
OSPI	Washington Office of the Superintendent of Public Instruction
Parks	Washington State Parks & Recreation Commission
PSAT	Puget Sound Action Team
SRO	Salmon Recovery Office
Tribes	Indian Tribes of Washington
USDA	US Department of Agriculture
USFS	US Forest Service
USFWS	US Fish and Wildlife Service
USGS	US Geological Survey
WACD	Washington Association of Conservation Districts
WSDA	Washington State Department of Agriculture
WSDOT	Washington State Department of Transportation

ABBREVIATIONS FOR PROGRAMS, ETC.

Short	Long
AFO, CAFO	Animal Feeding Operation, Concentrated Animal Feeding Operation
BMPs	Best Management Practices
CCWF	Centennial Clean Water Fund
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act (Superfund)
CWA	Clean Water Act
CWAP	President's Clean Water Action Plan
CZARA	Coastal Zone Management Act Reauthorization Amendments
ESA	Endangered Species Act
GMA	Growth Management Act
HCPs	Habitat Conservation Plans
HPAs	Hydraulic Project Approval
JFE	Jobs for the Environment
LLPs	Landowner Landscape Plans
MOA, MOU	Memorandum of Agreement, Memorandum of Understanding
NALMS, WALPA	North American or Washington Lake Protection Association
NPDES	National Pollutant Discharge Elimination System
NPS	Nonpoint Source (Pollution)
NWMTA	Northwest Marine Trade Association
RCRA	Resource Conservation and Recovery Act
SEPA	State Environmental Policy Act
SMA	Shoreline Management Act
SRA	Salmon Recovery Act
TFW	Timber, Fish & Wildlife
TMDLs	Total Maximum Daily Loads
UWA	Unified Watershed Assessment
WPA	Watershed Planning Act
WRAS	Watershed Restoration Action Strategy
WRIA	Water Resource Inventory Area
WSG	Washington Sea Grant Program

Washington's Water Quality Management Plan To Control Nonpoint Sources of Pollution

Executive Summary

Nonpoint pollution is pollution that enters a water body from water-based or land-use activities, including atmospheric deposition; surface water runoff from agricultural lands, urban areas, and forest lands; subsurface or underground sources; and discharges from boats or other marine vessels.

Nonpoint source water pollution is a growing threat to the environment and public health. It's the accumulation of sediment, chemicals, toxics, nutrients, debris and pathogens that rain water and snow melt pick up and carry into the nearest body of water. Sometimes nonpoint pollution can be traced to several sources; sometimes it cannot be traced at all.

Washington has been a leader in addressing NPS pollution for many years. We already have many tools to achieve cleaner water through nonpoint source management. Some are regulatory while the majority are voluntary programs. Watershed efforts have addressed problems in most parts of the state. There are numerous examples of innovative approaches to management and funding.

In spite of all the work accomplished to date, salmon recovery and protection require more urgent efforts to control NPS pollution. Ground water contamination and shellfish downgrades are further indicators that pollution is increasing faster than our efforts to prevent it or clean it up. Development and changing landscapes are significant sources of the emerging problems. Non-urban land uses are shrinking but continue to produce chronic problems.

Though many innovative approaches are available in Washington, several factors limit their success: the high cost of fixing old problems, local land use decisions, the lack of agency coordination and focus, and the lack of information concerning watershed processes and conditions.

The President's Clean Water Action Plan requires each state to update its plan for managing nonpoint pollution in 1999, in order to qualify for grants under the Clean Water Act (CWA) (Section 319). Washington's potential share is about \$3.8 million per year, half of which is typically awarded to local governments and private nonprofit organizations.

This plan also addresses a separate set of federal requirements under the Coastal Zone Management Act Reauthorization Amendments of 1990 (Section 6217). This statutory requirement affects approximately \$2.8 million in federal coastal zone management funds.

The plan is a statewide look at protecting Washington's natural resources from nonpoint pollution. It is a collaborative effort of a wide range of entities. It identifies gaps in

existing programs, sets a strategy for improving those programs, recommends timelines, and outlines methods for determining success.

We have used three approaches to evaluate and plan these efforts:

- Nine "Characteristics of a Successful Nonpoint Program" provided by EPA in 1996 under section 319 of the federal Clean Water Act,
- Fifty-six Management Measures provided in 1992 by EPA and NOAA which describe the minimum elements that coastal states should include in NPS programs, and
- Opinions and ideas of agencies and organizations in the nonpoint arena.

This plan reflects current efforts and creative, practical new ideas from all our partners and interested citizens. The recommendations focus on how we can improve existing efforts by stronger implementation, increased funding, or doing something new.

Chapter 1 Purpose of Document

Washington's Water Quality Management Plan to Control Nonpoint Sources of Pollution is a holistic approach to controlling and cleaning up nonpoint source pollution. The last plan of this sort was completed in 1987. Since that time, numerous new programs have been developed and implemented, leading to many successful on-the-ground efforts. This update to the 1987 plan incorporates those changes and looks forward to further program improvements for the next five and 10-year horizons.

Ecology's Water Quality program is the designated lead in developing this plan. The plan must describe the State's nonpoint source program, which loosely includes all nonpoint efforts by federal, state, tribal, and local governments as well as volunteer programs carried out by the general public. To compile this information and evaluate the needs has been a monumental endeavor, partly due to the incredible depth and diversity of work that is underway. The landscape of nonpoint initiatives has changed dramatically throughout the period of preparation, especially as the State wrestles with the needs of protecting and restoring salmon runs. The authors hope they have captured the major efforts and have left an open door to further program adjustments and improvements as time goes on.

In a broad sense, this plan has two purposes. The first is to meet federal mandates. Washington is required to update its Nonpoint Source Management Plan so it can continue to receive grant funds under Section 319 of the Clean Water Act and Section 6217 of the Coastal Zone Act Reauthorization Amendments of 1990. Guidance from the Environmental Protection Agency (EPA) and National Oceanic and Atmospheric Administration (NOAA) was used to evaluate current nonpoint source efforts and determine where program upgrades were needed.

The second purpose of the document is to assess the particular needs of the state regarding nonpoint source pollution. The federal requirements discussed above apply to all states and therefore are general in nature. Several issues related to nonpoint source pollution control are unique to the Northwest states, especially salmon habitat and shellfish production. This plan looks specifically at the additional needs of protecting unique Northwest resources.

The plan is composed of two major sections. Chapters 1 through 7 analyze the existing programs and authorities in the state. Chapters 8 through 13 set direction for the future and focus on how we improve program effectiveness. A schedule for implementation of new actions is established in Chapter 9. This is backed up with concurrence agreements from most of the implementing entities.

Background

The 1996 Report on Water Quality in Washington State (Department of Ecology Publication #WQ-96-04) reports only 22 percent of the problems in our streams that don't meet water quality standards could be traced to "point" sources. Most of the polluted streams are impacted by "nonpoint" sources. Nonpoint pollutants are introduced into water through runoff. Rainfall and snow melt wash pollutants from the land into rivers, streams, lakes, oceans, and underground aquifers. Land use is strongly correlated to nonpoint pollution. Therefore, to manage nonpoint pollution, we must focus on land use activities.

The intensity of environmental impact from each land use differs. For example, urban districts making up about two percent of the land base are generally under the highest environmental stress. Park areas, with far more land area in the state, experience very little impact. Agricultural and forestry land uses account for approximately 90 percent of land in the state, giving the appearance that the pollution from these sources is consistent and well-defined. However, nonpoint source problems associated with these two land uses vary from none to very extensive.

The following land uses predominate in Washington State:

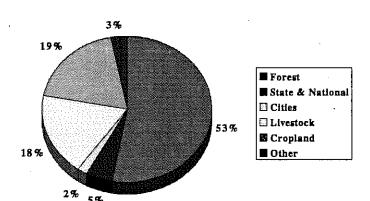


Figure 1.1 Land Use in Washington

(Sources: Agricultural Statistics Service; Department of Natural Resources; Office of Financial Management)

The major sources of nonpoint pollution can be divided into the following categories:

<u>Category</u> <u>Types of Sources in Categories</u>

Agriculture Livestock; Dryland; Irrigated; Non-commercial

agriculture

Forest Practices Road Construction and Maintenance; Harvesting;

Chemical Applications

Urban Areas Stormwater; On-site Sewage Systems; Hazardous

Materials, Construction and Maintenance of Roads

and Bridges

Recreation Marinas and Boats; Parks; Off-Road Vehicles;

Shoreline Uses

Hydromodification Stream Channelization, Dikes, Dredging, Riprap,

and Dams

Loss of Aquatic Ecosystems

Areas:

Filling of Wetlands and Alteration of Riparian

Shoreline Development

The primary water pollution problems in Washington are high temperature, pathogens, pH, low dissolved oxygen, metals, and nutrients. Most of these problems are caused by nonpoint source pollution. Nonpoint pollution is the primary concern in rivers, lakes and ground water, but point sources of pollution are still the predominate source of estuary pollution.

The use impairments noted above are the actual land use activities that are degrading the streams to the point where they cannot provide the desired benefits to the community. Impacts from these pollutants have been felt throughout the ecosystems in the state. A few key resources have been put at special risk from nonpoint activities:

• Salmon and other fish habitat: High temperatures and low dissolved oxygen interfere with the normal life cycles of fish. Pathogens and toxics can harm the fish and/or render them unsafe to eat. Some toxics can bio-accumulate: concentrations in tissue increase as you go up the food chain. Sedimentation and other forms of habitat alteration can destroy spawning areas and limit opportunities for food. Reduced instream flow can eliminate habitat and contribute to high water temperature and low dissolved oxygen.

High temperature from removal of riparian shade	Agriculture, forestry, urban development			
Bank erosion from animal access	Agriculture			
Coarse sediment from landslides	Forestry			
Fine sediment from road and surface erosion	Agriculture, forestry, urban development, recreation			
Lack of large organic debris from removal of riparian vegetation	Forestry, agriculture, urban development			
Reduced instream flow from over-allocation and impervious surfaces	Urban development			
Bulkheads and other shoreline construction and habitat alteration	Shoreline development			

• Shellfish Growing Areas: Shellfish are susceptible to the same pollutants as fish, including sedimentation. Over 46,000 acres of key shellfish growing areas in Washington have been closed or restricted for harvesting due to contamination since 1981. Beaches in the metropolitan areas were closed as early as the 1950's. These closures and restrictions have been on commercial and recreational areas.

Fecal contamination from animal access in tributaries and lack of proper manure management	Agriculture
Fecal contamination from failing on-site sewage systems	Suburban development
Fecal contamination from stormwater runoff in suburban areas	Suburban development
Fecal contamination from overboard discharges of sewage from boats without holding tanks and lack of adequate pumpout facilities	Recreation
Fecal contamination from increased recreational use with inadequate facilities	Recreation
Fecal contamination from wildlife	General

• **Drinking Water/Ground Water:** Many nonpoint pollutants will eventually leach into ground water. This hazard is especially important because 70 percent of the state's drinking water comes from ground water.

Elevated nitrates from inappropriate use of animal waste, and fertilizers	Agriculture
Contamination from use of pesticides	Agriculture, Urban and Suburban development
Nutrients and fecal coliform from failing on-site sewage systems	Suburban development
Elevated chlorides, nitrates, coliform from the management of commercial and urban stormwater through underground injection	Suburban

Other resources impacted by nonpoint pollution which will be discussed throughout this document include impacts on wetlands, riparian areas, and marine waters.

Table 1.1 Sources of Pollution by Land Use Activities

Nonpoint Source	Nitrogen	Fecal coliform	Sediments	pН	Dissolved oxygen	Pesticides	Flow	Temperature
Agriculture			3 (3.5-2.5)					
Animal Feeding Operations	X	х	x	х	х			
Dryland	х		х			х		х
Irrigation	X.		Х	X ,	X	х	х	х
Noncommercial	х	х	х					х
Forest Practices								
Road construction			х			Х	х	x
Timber harvesting			х				х	х
Reforestation	х					Х		х
Urban/Rural								
Construction			х					х
On-site sewage systems	x	х		х	х			
Stormwater runoff	x		х	х		Х.	х	x
Hydromodification								
Channelization			Х		х		х	· x
Dams			х		x		х	х
Wetlands and	,							
riparian areas								
Vegetative			x		x	x	x	x
clearing			<u> </u>					

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Draining of	х		х			х	X
wetlands							
Recreation							
Marinas and boats	X	х	х	X	х		
Off-road		X	х				
Hiking, fishing		x					

As the table indicates, many sources of pollution contribute similar pollutant types. For example, fecal coliform is generated through agricultural practices, stormwater runoff, on-site sewage systems, and recreation. The cumulative effects of these many sources of fecal coliform can be devastating to the receiving waters and ecological systems that rely on those waters.

Nonpoint pollution is generally regarded as a land use issue. Since a pollutant can be generated from several sources, the management, treatment, and enforcement to control nonpoint pollution are extremely difficult and complex. Chapter 5 contains a thorough discussion of these land use activities and an analysis of current programs to control nonpoint sources of pollution.

Federal and State Requirements

The development of this strategy is timely for several reasons. New emphasis has been given to controlling nonpoint sources of pollution. This is particularly true at the federal level where the 1998 President's Clean Water Action Plan calls for rigorous management of nonpoint pollution. Here in Washington State, the Salmon Recovery Act identifies nonpoint source pollution as a primary target if recovery is to succeed.

Two processes have driven the need to develop this strategy: the federal mandates and the listings of salmon as an endangered species.

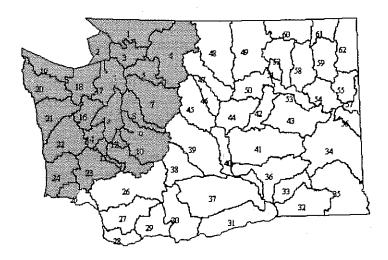
Federal Mandates

The planning provisions of Section 6217 of the federal Coastal Zone Act Reauthorization Amendments (CZARA) require states with coastal areas to develop and implement comprehensive nonpoint source programs in those areas. The objective of the Coastal Zone Management Plan is to significantly improve water quality by providing the best possible alternatives to those who implement nonpoint source programs.

The planning provisions of Section 319 of the federal Clean Water Act (CWA) also require states to develop comprehensive nonpoint source control programs. Under Section 319, states must develop a plan to address nonpoint pollution and work with local communities to implement it. As a result, states receive federal funding to help local governments solve nonpoint pollution problems.

There is one major distinction between the requirements of CWA and CZARA regarding nonpoint. The assumption of CWA is that the plan will cover the entire state and programs therein will be implemented across the state as needed. CZARA only covers "the coastal nonpoint area" also called the "6217 management area". Under CZARA, states are required to establish this area, based on guidance from NOAA and EPA. In previous submission of the state's CZARA plan in 1995 and 1996, the coastal zone was defined as 15 counties in Western Washington: Clallam, Island, Jefferson, King, Kitsap, Mason, Pierce, San Juan, Skagit, Snohomish, Thurston, and Whatcom in the Puget Sound region and Grays Harbor, Lewis, Pacific, and Wahkiakum along the Pacific Coast. This designation will remain essentially the same, except it will be based on the WRIAs rather than the counties. Thus, the 6217 management area is comprised of WRIAs 1 - 24.

Figure 1.2
Coastal Nonpoint Management Area



Although not a requirement for the creation of this document, Section 320 of the Federal Clean Water Act created the National Estuary Program. The EPA subsequently adopted the Puget Sound Plan as a Comprehensive Conservation and Management Plan for the Puget Sound Estuary. The Puget Sound Plan strives to control nonpoint sources of pollution. The Lower Columbia River Estuary Program recently completed a management plan that calls for additional control of nonpoint sources of pollution.

State Mandates

In 1998, the Washington State Legislature enacted two sweeping measures. The Watershed Planning Act establishes a framework to identify and rectify problems with water quantity, water quality, and aquatic habitat. The Salmon Recovery Act establishes a salmon recovery office with the Governor's Office to coordinate efforts within the state to restore salmon habitat and fisheries. These planning processes identified nonpoint

source pollution as one of the primary causes of impairment of water quality and salmon habitat.

Ecology has responsibility for water quality under CWA and Washington's Water Pollution Control Act (chapter 90.48 RCW). However, this analysis of water quality issues in Washington indicated that nonpoint source control is largely a local land use issue, with the exception of forest practices. Ecology's ability to compel other government entities to initiate and manage programs for nonpoint pollution control is limited. Therefore, Ecology must heavily rely on voluntary programs and locally-driven efforts to meet water quality objectives.

The Puget Sound Action Team (formerly the Puget Sound Water Quality Authority) was created by RCW 90.71. The PSAT is responsible for program planning and overseeing implementation of the Puget Sound Plan. The Puget Sound Plan has focused attention on nonpoint pollution. The plan has also been responsible for state initiatives for upgrading local on-site sewage programs, for anticipating and responding to closure of shellfish beds, for supporting local development of nonpoint watershed action plans, and for guiding and supporting development of local stormwater programs.

The Growth Management Act (GMA) RCW 36.70A) provides legislative direction to local governments requiring them to protect critical areas. These include aquifer recharge areas, frequently flooded areas, and fish and wildlife conservation areas. Washington State requires local governments to develop policies and regulations ensuring the designation and protection of critical areas. The GMA also requires demonstration of water availability before issuing development permits.

Relationships between agencies, tribes, and key local counterparts need considerable strengthening if water quality is to improve. It is clear that the magnitude of the nonpoint source problem in Washington is larger than any one entity can handle alone. Much more can be accomplished by coordinating and cooperating with other agencies, helping people acknowledge ownership and solve local problems, and leveraging local energy and resources to reduce pollution. The building of this document did much to coordinate and improve those relationships.

What Happens Next

Several management changes will take place because of this effort:

Increased Coordination and Communication:

Many nonpoint source efforts by Ecology and other agencies are driven by complaints and enforcement actions. These actions have been most effective when coordinated with local agencies and special districts, especially conservation districts. For this aspect of the state's nonpoint program to be successful, working relationships between the state and local levels will need improvement.

Increased Monitoring and Education

In this management plan, we cite examples of current efforts to control nonpoint sources that have resulted in documented water quality improvements. In many cases, public awareness has been raised through watershed efforts, and cooperation is continuing to increase. However, in most cases, actual measurable water quality improvement has not been achieved on a watershed level.

Adaptive Management

The plan calls for yearly progress reports from implementing agencies. The purpose of the reports is to determine if water quality has improved through the actions identified in this document. Every five years the state needs to do an assessment of this nonpoint program and determine if changes are necessary. The five year review, coupled with the progress reports, will help us determine necessary changes. In this regard, being open to adaptive management is a hallmark of this effort.

Chapter 2

Problems from Nonpoint Source Pollution

Nonpoint pollution is generally regarded as a local land use issue that has far-ranging effects. Land use activities benefit the economy in both the long and short term, but some of them are the primary contributors to nonpoint source pollution. Resolving the dilemma between the economy and the environment is not easy.

The Washington State Legislature defined nonpoint pollution as:

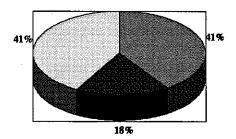
"pollution that enters any water of the state from any dispersed water-based or land-use activities, including, but not limited to, atmospheric deposition, surface water runoff from agricultural lands, urban areas, and forest lands, subsurface or underground sources, and discharges from boats or other marine vessels." (RCW 70.146.020(8))

Water quality data is available from rivers, lakes, estuaries and ground water in Washington. The quality and quantity of this data are highly variable due to many factors. Each of these systems are typically impacted by different sources of pollution and types of pollutants. This too is highly variable, mostly due to land use differences. The following discussion looks at the four water systems and evaluates the primary nonpoint source pollution issues for each.

Rivers

Many different water quality problems affect rivers and streams in the state. Approximately 65 percent of the total rivers and streams assessed are not fully supporting their beneficial uses. These range from large lowland rivers draining agricultural and urbanized areas to small streams in forested areas.

Figure 2.1 Condition of Washington's Streams



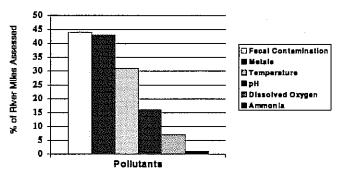
1998 305(b) Report

The primary causes of water quality problems are fecal contamination, metals, temperature, pH and dissolved oxygen. Siltation and other habitat modifications are

significant issues as well. With the exception of metals pollution, these are all indicators of nonpoint source pollution. These problems affect the use of rivers and streams for swimming, support of aquatic life, and wildlife habitat. The graph below shows the major causes impairing beneficial uses in the state's rivers and streams.

Figure 2.2 Pollutants Causing Impairment

All Streams Assessed in Washington



1998 305b Report

Impacts from various land uses are slowly changing. In the forested environment, forest practices rules focusing on preventing water quality problems have been in place since the early 1980s. These rules have been modified over time to provide what is generally recognized as the most restrictive protection found in any state in the country. Forested areas have been the site of many restoration efforts. Though change occurs slowly in the forest, the indication is that forested streams will gradually improve over time.

In agricultural areas, practices are also improving. Educational efforts by the Natural Resources Conservation Service, conservation districts, and WSU Cooperative Extension have raised awareness of producers and increased the number of acres managed under best management practices (BMPs). Nutrient management on dairy farms continues to be a tough issue, along with soil erosion from dryland and irrigated crops. But progress is happening, and in many areas we expect to see the fruits of this work showing up as cleaner water. It will be important for the agricultural community to assess the changes and demonstrate water quality improvements so people will be aware of them.

The difficult places in the state are on the urban fringes. Data from a variety of studies now shows that aquatic ecosystem integrity and the ability to support fish life (a beneficial use) are impaired when the impervious surface of a watershed exceeds very low levels. Since most of the development in the state is occurring on the urban fringe, the total acreage of agricultural and forest land is being depleted. With that loss comes the inevitable degradation of water quality.

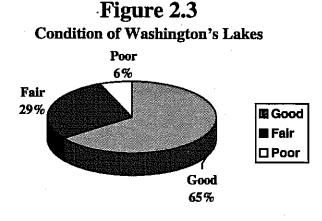
The greatest impacts associated with urban development are from altered peak flows in the winter and reduced base flows in the summer. Runoff from impervious surfaces also delivers nutrients, sediment, fecal contamination and toxic chemicals to stream systems. Stormwater management is a problem for many towns. Future development using today's BMPs will continue to exacerbate the situation.

The public's understanding of the value of river systems in Washington continues to increase. Rivers are seen as much more than simply a source of power or water. Issues related to salmon survival highlight the magnitude of water quality, flow, and habitat problems. Conflicting uses have resulted in a need for more comprehensive planning that considers a wide range of interests. Population growth has had a disturbing impact on water availability that in turn impacts the quality of the water in streams and rivers. New information about ground water-surface water interaction has opened a whole new aspect to management decision making.

Lake Health

One of the most sought-after housing sites in Washington is on the shoreline of a beautiful, clear lake. Many of the lakes of Washington have what people want - an aesthetically pleasing setting, quality recreation and fishing conditions, a healthy habitat for fish and wildlife and good water quality. Those lakes with poor water quality may be due to natural conditions, but generally the culprit has been man's own activities in the watershed. Excessive loading of phosphorus, both external and internal, almost always causes the excessive algal concentrations that indicate poor water quality.

In nearly all cases, watershed developments with associated runoff from roofs, streets, sidewalks, and lawns are the main sources of phosphorus which eventually ends up in lakes. As sediments accumulate, in-lake recycling of phosphorus can become the dominant source that feeds excessive blooms of algae. In extreme cases, cyanobacteria (blue-green algae) can severely degrade the lake uses. Development of lake-watersheds is an ever-increasing threat to lakes' health as our population grows. The following figure shows that 35 percent of monitored lakes are in less than good condition. Many are in high-density housing areas.



1998 305(b) Report

Aquatic plant management can be a most confusing issue when examining the health of a lake. Many lake residents do not understand that most healthy lakes, especially if shallow, will naturally have an abundant and diverse population of aquatic plants. To many lakeside residents, abundant plant growth must be removed to improve access, recreation and aesthetics. Often, a comprehensive lake education program will help lakeshore owners realize that natural riparian zones and aquatic plant communities are essential for a healthy lake.

Estuaries and the Nearshore

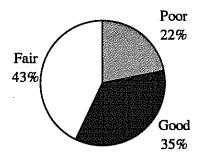
The tidal, sheltered waters of estuaries where fresh and salt water mix support unique communities of plants and animals, specially adapted for life at the margin of the sea. Estuarine environments are among the most productive on earth, creating more organic matter each year than comparably-sized areas of forest, grassland, or agricultural land. Many different habitat types are found in and around estuaries, including shallow open waters, freshwater and salt marshes, sandy beaches, mud and sand flats, rocky shores, oyster reefs, mangrove forests, river deltas, tidal pools, sea grass and kelp beds, and wooded swamps.

The nearshore environment includes the beach, intertidal and shallow subtidal areas. These habitats are critical to the health of estuaries and marine life. They provide shelter for fish, shellfish, birds, and marine mammals. They're used as spawning, rearing and feeding grounds for species that live in and around the shoreline. The nearshore is a variety of habitats, from mudflats to eelgrass beds and salt marshes. Each is significant for supporting some aspect of the salmon life cycle.

Salmon are very small when they leave streams and enter estuaries and other nearshore environments. They use the nearshore as their travel corridor to the ocean and their chance to grow, eating large quantities of forage fish such as sand lance, surf smelt, herring and other small marine animals until they get big enough to move out into deeper waters.

The nearshore is also home to an abundance of small marine invertebrates. Surf smelt spawn directly in gravel on the beach near the high water mark. Herring lay their eggs on eelgrass and raise their young in eelgrass beds. Eelgrass beds occur in shallow and generally calm marine waters and are sensitive to human disturbance.

Figure 2.4
Condition of Washington's Estuaries



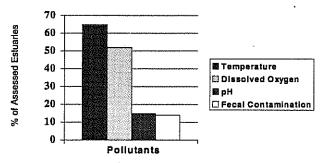
Estuaries are critical for the survival of many species. Tens of thousands of birds, mammals, fish, and other wildlife depend on estuarine habitats as places to live, feed, and reproduce. Estuaries provide ideal spots for migratory birds to rest and refuel during their journeys. And many species of fish and shellfish rely on their sheltered waters as protected places to spawn, giving them the nickname "nurseries of the sea." Hundreds of marine organisms, including most commercially valuable fish species, depend on estuaries at some point during their development.

Among the benefits of estuaries are recreation, scientific knowledge, education, and aesthetic values. Boating, fishing, swimming, surfing, and bird watching are some of the recreational activities people enjoy there. Estuaries are often cultural centers for coastal communities, serving as focal points for local commerce, recreation, celebrations, customs, and traditions. As transition zones between land and water, estuaries are valuable laboratories for scientists and students, providing lessons in biology, geology, chemistry, physics, history, and social issues. Estuaries also give aesthetic enjoyment for the people who live, work, or recreate in and around them.

The economic benefits of estuaries should not be overlooked. Tourism, fisheries, and other commercial activities thrive on their wealth of natural resources. Estuaries serve as harbors and ports for shipping, transportation, and industry.

Some of the impacts to estuaries are caused by upland development which can easily pollute the nearshore with bacteria, excess nutrients and toxics, making shellfish unsafe for eating and water unsafe for swimming. Temperature and dissolved oxygen problems shown below are largely due to natural conditions.

Figure 2.5
Pollutants Causing Impairment
of All Estuaries Assessed in Washington



1998 305b Report

Direct physical alteration of the nearshore occurs with the construction of bulkheads, rip rap, docks, piers, and other waterfront features. These can affect the character of the beach and shallow water areas and cause the loss of some habitats, including baitfish spawning areas and eelgrass beds.

Ground Water in Washington State

In Washington, ground water provides more than 65 percent of the drinking water consumed by its 5.6 million residents. Ground water constitutes over 25 percent of the total water used for drinking, industrial, commercial, and agricultural purposes. Given the importance of ground water to public health and economic development, it is vital that this resource be protected and managed for current and future beneficial uses.

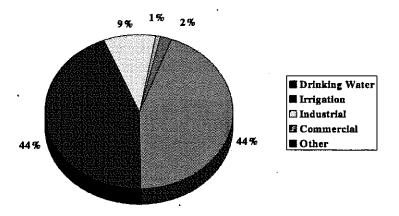
There are approximately 16,000 ground water dependent drinking water supply systems in the state. These systems constitute over 95 percent of the public water supply systems. Private wells are estimated at 404,000, serving 1,000,000 residences located primarily in rural areas.

Ground water contributes significantly to our surface water bodies. It is estimated that baseflow contribution for streams is 70 percent. Protection of the State's ground water resources is vital in maintaining instream flows and water quality in the state's streams and lakes during summer months. A major concern for the State is the expected increased demand on ground water as the population grows from current levels to an estimated 11 million by the year 2045.

Washington has some of the most productive aquifers in the nation. The largest is the Columbia River Basalt Aquifer System located within 13,000 square miles of the central portion of the state. Two smaller but vital aquifer systems serve the Spokane and Puget

Sound areas (the Spokane-Rathdrum Prairie Aquifer and the Puget Sound aquifer system). Well yields in all three of these systems are substantial.

Figure 2.6 Groundwater Use in Washington



Generally, ground water quality in Washington is good. However, there do exist several areas of degraded ground water where beneficial use has been negatively impacted. These include areas of elevated nitrate within the Columbia Basin, elevated nitrate and EDB in Whatcom County, and TCE and metals in areas of Clark County. Currently the State has identified 22 CERCLA (Superfund) sites, 10 RCRA corrective action sites, and over 100 sites currently being managed under the State's Model Toxics Control Act.

Ground water contamination due to nonpoint sources appears to be the most significant threat to ground water quality. Nitrate contamination of the State's aquifers is the most widespread problem encountered to date. Statewide, exceedances of the 10mg/l nitrate-nitrogen drinking water standard in private/domestic wells are estimated at 10-15 percent, with a few areas as high as 20-25 percent. A recently-completed study by the Washington State Department of Health in conjunction with the USGS indicated that of 1,326 Class A public water supply wells sampled, no violations of maximum contaminant levels (MCL's) were detected for pesticides. Low levels of pesticides were detected in approximately six percent of a subgroup (1,103) of these wells.

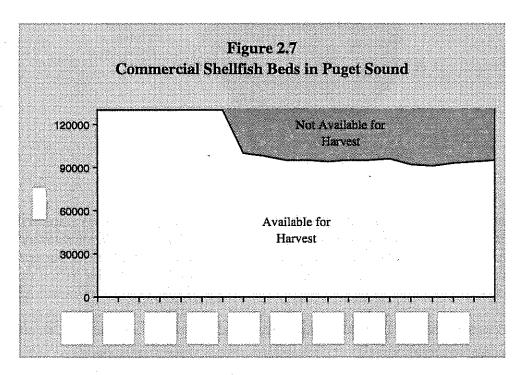
Single family domestic (private) wells are classically at higher risk from nitrate contamination than municipal wells. Private wells are typically more shallow than municipal wells and are often located in closer proximity to potential contaminant sources such as septic tanks, agricultural areas or concentrated animal operations. The statewide percentage of private wells exceeding the nitrate standard may well be 10-15 percent as referenced above, but DOH lacks sufficient statewide data to support this figure.

FINAL: Washington's Nonpoint Source Management Plan

Shellfish Harvesting

Commercial Shellfish

Department of Health's Office of Food Safety and Shellfish Programs is responsible for issuing licenses and certification to over 350 commercial shellfish operations. A variety of species is harvested commercially in Washington's Puget Sound and coastal regions, including oysters, clams, and mussels. Since these species are filter feeders capable of concentrating chemicals, bacteria, viruses, or marine biotoxins, ongoing evaluations of pollution sources and water quality in the harvest areas are essential.



Recreational Shellfish

Department of Health's Recreational Shellfish Program provides information about where and how to safely harvest shellfish that are free of contamination. To achieve this goal the department classifies beaches by locating potential shoreline pollution sources and evaluating water quality for bacteria. The department also monitors beaches for biotoxin (PSP). Pollution sources can be more long term, chronic problems. Beach classifications reflect local pollution conditions.

Water Quality Assessment in Washington

Ecology continually assesses the quality of the waters of the State to see if water quality standards are being met and if beneficial uses are being protected. Data to support this assessment come from many sources inside and outside the agency. This information is then reported semi-annually to EPA in the 305(b) Report, named after section 305(b) of the Clean Water Act.

Baseline Monitoring

Baseline monitoring determines current conditions in a water body or aquifer. It is often associated with planning activities and focused on a watershed or geographic area. Planning activities include nonpoint source pollution controls, TMDLs, ground water protection, or any of the other planning activities identified in Chapter 6. Approximately half the State's surface waters and vast majority of ground waters have not been monitored and need baseline data. Over the next 15 years, the goal is to get baseline data for both surface and ground water at the rate of an additional two percent of the state's waters per year.

Ambient Monitoring

Ecology's Environmental Assessment Program (EAP) currently has an ambient monitoring program to assess the current status of state surface waters, identify threatened or impaired waters, and evaluate trends in water quality over time. This is accomplished through a statewide network of sampling stations in rivers, streams, lakes, and marine waters (Puget Sound and coastal estuaries). To maximize coverage and reduce costs, sampling stations are located in coordination with other state, local, and federal agencies. By detecting early changes, ambient monitoring allows simpler, less expensive solutions to emerging problems.

The objectives of the ambient monitoring program are:

- to provide analytical water quality information which describes present conditions and changes in water quality and which discusses the impacts of these conditions on the aquatic resource
- to provide data with which TMDL models may be refined and verified and for other site-specific water quality issues
- to provide data to evaluate impairment of beneficial uses and detect violations of State water quality standards

The surface water ambient monitoring program has approximately 82 river and stream stations, 40 marine water stations, 100 sediment monitoring stations, and 74 lakes. The program also coordinates volunteer monitoring of approximately 65 lakes using over 75 volunteers. The data is stored at Ecology, but is available to anyone requesting it. The program typically fills over 200 requests for data per year.

Another monitoring program in Washington is the Puget Sound Ambient Monitoring Program (PSAMP). One of its goals is to measure the success of implemented programs. It is a long-term effort to comprehensively monitor and assess the condition of the Puget Sound ecosystem. The Puget Sound Action Team coordinates ambient monitoring activities in the Sound by federal, state, tribal, and local agencies. There are many other ambient monitoring activities in the State. Tribal and local entities regularly monitor waters in their jurisdiction or surrounding areas.

In 1998, directors of the Departments of Ecology, Health, Agriculture, and Conservation Commission declared that there was value in investigating the possibility of establishing a statewide ambient ground water monitoring system similar to those established in numerous other states. In 2000 this investigation will begin through use of the Interagency Ground Water Committee and in coordination with the U.S. Geologic Survey and the U.S. Environmental Protection Agency. Ultimately, the goal will be to establish an ambient monitoring system to track trends in ground water quality (305(b) Report), and to use as a measure of progress for regional and statewide ground water protection initiatives.

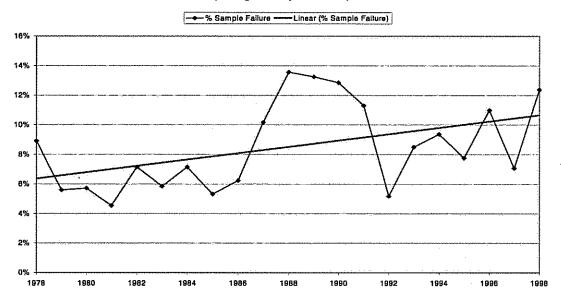
Evaluating Water Quality Change through Violation History

Ecology's Water Quality Program has evaluated statewide ambient monitoring data from EAP to show the number of violations of water quality standards over time. Even though the data does not represent a valid trend analysis, the information is indicative of water quality improvements or further degradation. Ecology has been using a water quality index for pH, dissolved oxygen, temperature, and fecal contamination, to show percent failure rate of samples collected over a 20-year period. Percent failure is the number of samples that fail to meet the standard, divided by the total number of samples. The resultant number shows an indication of whether the State's waters are improving or declining. Linear indication lines have been added to each index to show overall tendency, but statistical trend analysis has not yet been completed.

The following charts show data from 42 of those monitoring stations analyzed for specific water quality parameters over the past 20 years. Temperature has shown a nearly two percent increase in sample failure rate.

Figure 2.7 pH Sample Failure Rates

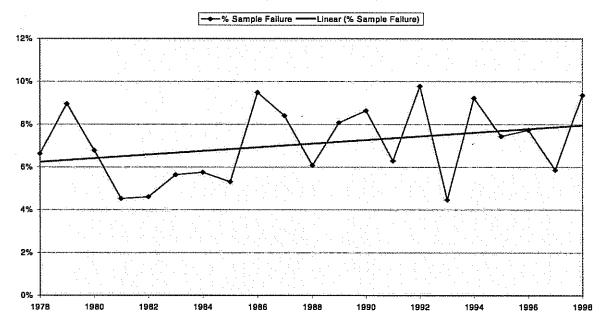
pH Sample Failure Rates from 42 River Stations for WYs 1978-98 (Average for 21 years = 8.5%)



The failure rate of attaining pH standards has increased nearly four percent over the last 20 years.

Figure 2.8 Temperature Sample Failure Rates

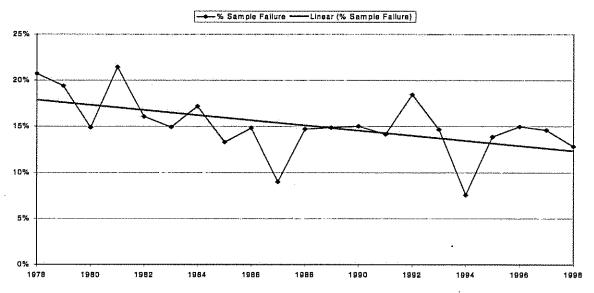
Temperature Sample Failure Rates from 42 River Stations for WYs 1978-98 (Average for 21 years = 7.1%)



Temperature has shown a nearly 2% increase in sample failure rate.

Figure 2.9 Fecal contamination Failure Rate

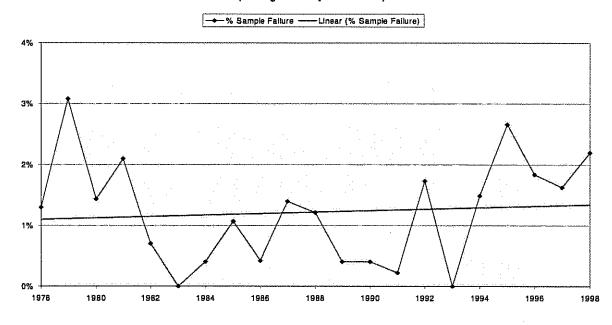
Fecal Coliform Sample Failure Rates from 42 River Stations for WYs 1978-98 (Average for 21 years = 15.1%)



Fecal contamination is the only parameter of the four that has shown a decline in sample failure, nearly five percent.

Figure 2.10 Dissolved Oxygen Sample Fail Rate

Dissolved Oxygen Sample Failure Rates from 42 River Stations for WYs 1978-98 (Average for 21 years = 1.2%)



Dissolved oxygen has increased in sample failure rate, although the rate is less than one percent.

The State intends to develop data on several other parameters typically measured for nonpoint source pollution. Indices will be developed for flow, total suspended solids, pesticides, and nutrients. An effort will be made to develop these water quality indices for all 62 water resource inventory areas. However, a single statewide index will be developed first.

Project Monitoring

The Environmental Assessment Program also monitors surface waters on a project or site-specific basis. The types of projects include **Total Maximum Daily Load (TMDL) studies** conducted on rivers, lakes, and marine waters which do not meet state water quality standards. Technical assessments are made for all or part of a watershed and typically have both a field sampling and an analytical (modeling) component. Assessments quantify loading from both point and nonpoint sources and frequently include studies describing the relationship between surface water and ground water quality.

These assessments calculate the total maximum daily load (TMDL) allowed of a pollutant that the water body can absorb without causing violations of water quality standards. The reduction in loading that would be necessary to return the river, lake, or estuary to a condition of acceptable water quality is estimated, and alternative scenarios for pollutant load reduction which may be implemented by Ecology and local partners are explored.

Other entities in Washington are engaged in water quality monitoring activities.

- Washington State Department of Health is mandated by state law to classify commercial shellfish beds to protect shellfish consumers from contaminated shellfish. To meet part of the legal mandate, DOH continually monitors fecal contamination levels in more than 100 classified (restricted) commercial shellfish growing areas in Puget Sound.
- 2. Washington state tribes regularly monitor for water quality effects on fish habitat. In addition, tribes are often called upon to technically assist in water quality monitoring for local watershed planning efforts.
- 3. Local jurisdictions including conservation districts monitor for local watershed planning. They also monitor for impacts from onsite sewage disposal, effects of farm practices, and impacts from local land uses.
- 4. Washington State University and University of Washington consult with local jurisdictions and provide monitoring expertise. For example, the Water Research Center on the WSU campus has a long history of providing monitoring reports for local planning efforts, especially watershed planning and lake restoration planning.

- 5. With Ecology, the Governor's Council on Environmental Education has developed a program for citizen participation in environmental monitoring. The program, Watch Over Washington, supports local groups through a website where news, tips, and success stories are posted. It is estimated that more than 12,000 citizens and students in Washington are involved in monitoring our natural resources. The current emphasis on volunteer stream restoration projects to improve fish habitat has heightened the need for consistent protocols for volunteer water monitors, and the Council is now working toward that goal. More comparable, higher quality data from volunteers will increase the acceptability of their work.
- 6. Federal agencies also monitor water quality in Washington. US Geologic Survey has gathered considerable water quality information in Washington. The National Water Quality Assessment (NAWQA) program has provided reports on:
- Pesticides in Public Supply Wells in Washington State
- Possible Mercury Contamination of Walleye from Lake Roosevelt
- Predicting Ground Water Vulnerability to Nitrate in the Puget Sound Basin
- Central Columbia Plateau (CCPT) National Water Quality Assessment
- Puget Sound Basin NAWQA
- Irrigation and Surface Water Quality in the Quincy and Pasco Basins, Washington
- Pesticides in Selected Small Streams in the Puget Sound Basin
- Pesticides and Volatile Organic Compounds in Ground and Surface Water of the Palouse
- Pesticides Found in Ground Water below Orchards in the Quincy and Pasco Basins
- Watershed and River Systems Management Program: Application to the Yakima River Basin, Washington

USGS anticipates that it will continue with NAWQA studies in Washington, with increased coordination under this nonpoint management plan.

Other federal agencies that monitor Washington waters are the US Forest Service, Environmental Protection Agency, and the Fish and Wildlife Service. An MOA will facilitate greater coordination of monitoring efforts.

NPDES Monitoring

Many local governments in Washington State are required to monitor surface water by NPDES permits issued for wastewater treatment plant discharges and/or phase 1 stormwater discharges. Phase 2 NPDES will require monitoring for all local governments with stormwater discharges in urbanized areas. Furthermore, the 4(d) rule for Chinook salmon to be issued by National Marine Fisheries Service (NMFS) will likely also increase monitoring requirements by local governments.

Environmental Information Management (EIM)

A relatively new system, the Environmental Information Management System (EIM), was built to fill a growing need to collect and access information from various agencies and outside groups, as well as to assist in the sharing of data between Ecology and external users. It is currently available to Ecology staff with plans to place the system on the Web. EIM was designed to contain ambient environmental monitoring and natural resource information, in a format that is widely accessible. EIM captures information on environmental measurements and sampling results, along with a variety of information about those measurements, including location of the station where a sample was collected and the project under which it was originally collected.

EIM can store a wide range of data and then integrate different data sets in a variety of ways to generate reports from a project or monitoring station, or about a specific chemical or geographic area. For example, EIM can tell you what projects have been undertaken to characterize the water quality of a watershed, such as the Cedar River/Lake Washington system; where the monitoring stations are located in that watershed; and what monitoring results exist for pollutants of interest. Data can be accessed to help with trend or other analysis. In the future, individuals or groups will be able to use the Internet to search for data on a particular topic or watershed. EIM makes environmental data more useful and accessible for Ecology staff, and ultimately outside researchers and anyone else needing data.

In addition to monitoring data, EIM stores background information (metadata) such as information about the project, the site, or the quality assurance project plan.

Chapter 3

A Summary of Laws Controlling Nonpoint Pollution in Washington State

Since the 1970s, environmental law has emphasized regulating municipal and industrial facilities. Permits issued under the National Pollutant Discharge Elimination System (33 USC 1342) were intended to protect water from contamination. Issuing these permits and monitoring compliance with them are still an integral part of maintaining water quality. However, according to recent studies, less than one-third of all polluted waters in the state result from municipal or industrial discharges. Most water pollution doesn't come out of a pipe these days. It can be traced to everyone's day-to-day activities.

Generally, nonpoint source pollution is divided into six categories:

- Agriculture, including crop and animal feeding operations
- Forestry
- Urban pollution, including roads, on-site sewage systems, development, construction and pollution prevention
- Recreation (including marinas and boats)
- Hydromodification, and
- Loss of aquatic ecosystems.

In 1987, Congress amended the Clean Water Act to include section 319 (33 USC 1329), which requires all states to develop and implement programs to manage nonpoint pollution. Grants are awarded to states to execute nonpoint plans that have been approved by the federal Environmental Protection Agency (EPA). The state legislature designated Ecology as the lead for developing plans and programs required by the federal Clean Water Act (see RCW 90.48.260). In 1988, EPA approved Ecology's first nonpoint pollution plan. As part of the federal Clean Water Action Plan, EPA is now requiring states to update their nonpoint programs to maintain eligibility for these section 319 grants, as well as additional monies through the Clean Water Action Plan. This document is part of the required update.

In 1990, Congress required the development of nonpoint strategies for coastal areas through the Coastal Zone Act Reauthorization Amendments (CZARA). In section 6217 of this act (16 USC 1455b), states are to implement programs to include specific actions designated by EPA and the National Oceanic and Atmospheric Administration (NOAA) in their nonpoint programs. EPA and NOAA issued a list of 56 "Management Measures" for inclusion in State programs. States are also required to identify and implement additional programs, as needed, to ensure that all waters meet the State's water quality standards.

Ecology submitted its CZARA draft in September, 1995, and a revised draft in June, 1996. In June, 1998, Ecology received conditional approval on its CZARA submission.

The approval and its conditions are included as Appendix B of this document. This nonpoint plan is also intended to meet the requirements under section 6217 of CZARA.

Federal Laws Governing Nonpoint Pollution

Washington State has been delegated or otherwise authorized to implement the following federal statutes:

The Clean Air Act (42 USC 7401 et seq) is implemented through the Clean Air Washington Act (chapter 70.94 RCW), which prevents and regulates air pollution and its sources. Air pollution can lead to atmospheric deposition of pollutants in the State's waters.

The Clean Water Act (33 USC 1251 et seq) is mostly implemented through the State's Water Pollution Control Act (chapter 90.48 RCW). Some of the efforts derived from the Clean Water Act appear in the table below.

Table 3.1
State Activities Implementing the Clean Water Act

Activity	Reference in the Clean Water Act	Reference in State Statute (RCW)
Clean Vessel Act	33 USC 1252	Chapter 88.12 RCW
Discharge permits	subchapter 2: NPDES	RCW 90.48
List of impaired waters & TMDLs*	section 303	None
Lakes	section 314**	
Nonpoint Pollution	section 319	
National Estuaries	section 320	for Puget Sound: Chapter 90.71 RCW
Water Quality Certifications	section 401	
State Revolving Fund		Chapter 70.146 RCW

^{*}TMDLs are Total Maximum Daily Loads and are also referred to as Water Cleanup Plans.

The Coastal Zone Management Act (16 USC 1451 et seq) is implemented through the State's Shoreline Management Act (chapter 90.58 RCW), which is described in the next section.

The Federal Insecticide, Fungicide and Rodenticide Act (7 USC 136 et seq) is implemented by the State's Pesticide Control Act (chapter 15.58 RCW) This law requires that all pesticides that are used commercially must be registered with the EPA.

^{**} Section 314 is no longer funded.

The Marine Plastic Pollution Research and Control Act (33 USC 1901 et seq) is implemented for recreational boaters through the State's law for Marine Plastic Debris (chapter 79.81 RCW). The Coast Guard implements this law for commercial vessels.

The Solid Waste Disposal Act (42 USC 6901 et seq) is implemented through a variety of State laws regarding human health, including chapters 70.93, 70.95 et seq, 70.102, and 70.105 RCW et seq. A more detailed analysis of these laws is provided in the section on Pollution Prevention in the urban management measures.

The Toxic Substance Control Act (15 USC 2601 et seq) is implemented directly by the State Department of Health and local health departments. Current programs include lead abatement, poison control, and environmental assessments. Asbestos removal is implemented by local air authorities, and pesticides are regulated by the Department of Agriculture.

State Laws Governing Nonpoint Source Pollution

Managing Nonpoint Pollution through Land Management

The first priority in managing any pollution source is prevention. One of the most effective ways to prevent nonpoint pollution is to manage upland uses and activities.

Three key laws provide the basis for land management in Washington: the State Environmental Policy Act (SEPA: Chapter 43.21C RCW), the Shoreline Management Act (SMA: Chapter 90.58 RCW), and the Growth Management Act (GMA: Chapter 36.70A RCW). Local governments are key to the implementation of these acts: land use and zoning are primarily their responsibility. Some direct actions can be taken by the State under SEPA, and local government actions under all these laws can be appealed by the State or the general public.

State Environmental Policy Act (SEPA): SEPA may be the most powerful legal tool for protecting the environment in the State. SEPA review is required for all projects which need a permit or approval from a State or local government entity, unless they fall into categories specifically exempted in the SEPA rules. Activities undertaken by a government agency, such as rule and plan development, may also require SEPA review. Proposals that typically require SEPA review are found in Table 2. Some proposals are categorically exempt because the size or type of the activity is unlikely to cause a significant adverse impact. Examples of exempt projects are the construction of a single family dwelling, minor road repair and maintenance, and the issuance of a business license.

SEPA review is initiated when the applicant fills out the SEPA environmental checklist and submits it to the lead agency, usually in conjunction with a permit application (listed in Table 2). The checklist asks specific questions regarding the proposal, such as the amount of earth to be moved and the expected noise level. Specifications regarding

prevention or minimization of both immediate and long-term impacts, such as erosion control plans or noise reduction measures, are also requested in the checklist.

If the environmental effects of the proposal would be significant even after mitigation, the applicant or lead agency prepares a draft environmental impact statement (EIS). The draft EIS describes the impacts of the project on the environment and describes potential mitigation measures for each impact. After public review and comment, the lead agency then prepares a final EIS that responds to all comments on the draft.

The mitigation measures identified in SEPA become conditions on which the permit or approval is issued. Failure to complete them becomes a violation of the permit, subject to enforcement. Permitters should note, the mitigation measures must be listed as conditions on the permit or the permit applications must be altered to contain the needed changes for the mitigation conditions to be enforceable. Identification in the SEPA document alone is NOT sufficient.

Table 3.2
Typical Activities Requiring Review Under the State Environmental Policy Act

Project Types	Permit or Approval Required	Lead Agency(s)	
Building projects	Building and occupancy permits	Cities and Counties	
In-stream alteration of	Hydraulic Permit	Fish and Wildlife	
waterways			
Industrial discharge to	NPDES or state waste discharge	Ecology	
water	permit		
Examples of Government Actions requiring SEPA		Lead Agency(s)	
Promulgation of rules		All governments	
Adoption of a local plan (comprehensive plan, solid waste, wastewater, etc)		Local governments	
Road construction or other public works		WSDOT,	
		cities and counties	

If the lead agency feels that the adverse environmental impacts of the project cannot be mitigated, it can deny the permit or approval. SEPA states:

"The policies and goals set forth in this chapter are supplementary to those set forth in existing authorizations of all branches of state government, including state agencies, municipal and public corporations, and counties. Any government action may be conditioned or denied pursuant to this chapter..." (RCW 43.21C.060)

Thus, under SEPA, a project can be denied a permit, based solely on environmental impacts, within the limitations described in SEPA. This was reaffirmed in *Polygon Corp* v. City of Seattle (1978). In Department of Natural Resources v. Thurston County (1979), the courts further ruled that a project permit could be denied by SEPA even if it met other

FINAL: Washington's Nonpoint Source Management Plan

statutory requirements, in this case, the Shoreline Management Act (chapter 90.58 RCW).

Any organization, governmental or private, or individual citizen can challenge a SEPA determination. Challenges must first be made to the legislative body governing the lead jurisdiction (for example, city council, county commissioners, or the governing commission of a state agency) if that agency has an adopted SEPA appeal process. Further appeal can be pursued in district or superior court and in the State Supreme Court.

In summary, the State Environmental Policy Act (Chapter 43.21A) is used on a proposalby-proposal basis to eliminate or reduce each project's environmental impacts.

Shoreline Management Act: Many coastal, wetland and riparian areas can be managed under the State's Shoreline Management Act (SMA: chapter 90.58 RCW). In the act, a shoreline is defined as:

- a. all marine waters,
- b. streams with a mean annual flow greater than 20 cubic feet per second, and
- c. lakes with an area greater than 20 acres.

Associated wetlands, river deltas, and some or all of the 100-year floodplain may also be considered shorelines. Upland areas within 200 feet of any shoreline are defined as "shorelands." Both shorelines and shorelands are subject to the SMA.

In the SMA, local governments prepare what is termed a "Shoreline Master Program" which is both a planning and a regulatory tool. As a plan, it designates the allowed uses for the shorelines and how these uses may change over time. As regulation, local governments issue permits for all development of shorelines within the state under their respective master programs. Uses inconsistent with the master program are not allowed. An example of the use of a shoreline master program action would be to identify areas of low tidal flushing and to then disallow marinas as a use in those areas.

The SMA also requires Ecology to prepare guidelines for the development of local shoreline master programs and a State master program. To be valid, a local shoreline master program must be approved by Ecology. To gain approval, the local program must be consistent with the SMA, the guidelines, and the State master program.

Shoreline master programs must be developed with involvement of the public. Generally, this is done with a citizens' advisory committee as well as public hearings and comment periods. Both the adoption and approval of a master program can be appealed by any agency, organization, or citizen. These appeals go before the Growth Hearing Boards, which also hear appeals on the adoption of local comprehensive plans prepared under the State's Growth Management Act, discussed below. Permits issued under a shoreline master program may be appealed to the Shorelines Hearings Boards. All

appeals may be pursued from their respective board to the District, Superior and Supreme Courts of the State, as necessary.

If a jurisdiction does not have an Ecology-approved shoreline master program, Ecology may impose a virtual moratorium on substantial development by denying all permits for shoreline development, and appealing any issued by the local jurisdiction. And, although Ecology has never needed to use this authority, it may opt to develop a master program for a local jurisdiction and impose the plan on that jurisdiction. Currently, however, all jurisdictions which are required to have a master program either have one or have a "substantial equivalent" allowed by law.

In summary, the Shoreline Management Act can be used to implement many of the management measures related to shoreline development, marinas, wetlands, and riparian areas.

Growth Management Act: The GMA is the newest of these laws, passed in 1990 as a way to combat urban sprawl in the State. GMA required certain counties and the cities therein to update their comprehensive plans. Counties required to implement GMA had:

- a population greater than 50,000, which was an increase over the previous 10 years of:
 - 10 percent or more, if determined prior to May 16, 1995,
 - 17 percent or more, if determined on or after May 16, 1995; or
- a population increase of 20 percent or more over the previous 10 years, regardless of population.

In the remaining counties, a majority vote of the county commissioners triggers the requirement that the county, as well as the cities within the county, plan according to GMA.

In the early days of the act, implementation focused on a very narrow group of counties. The original intent of the act was to require "planning by selected counties and cities," presumably those with the most rapid growth. Only 12 of the state's 39 counties met the threshold for growth when it passed. Of these 12 counties, nine were in Puget Sound. Clark County, a part of Metropolitan Portland, Oregon, also met the threshold along with only two counties in eastern Washington, Chelan and Yakima.

Through the Department of Community, Trade and Economic Development, grants were available for counties and cities planning under GMA. Approximately \$50 million has gone to local governments to help them meet the requirements of the act and for special projects related to GMA. Ten counties have "opted in."

Growth in Washington has accelerated since 1990. In that year, the state had only grown 17.8 percent since 1980. By comparison, since 1995, the 10-year growth rate has hovered at 23 - 24 percent. As growth accelerated, more areas of the state met the threshold for planning under GMA. Currently, the number of counties under GMA has

more than doubled. Twenty-nine of the thirty-nine counties containing some 5.4 million people (about 95 percent of the State's population) are planning under the Growth Management Act.

According to GMA, all counties and cities in the state have some planning requirements. All Washington cities and counties are required to:

- designate and protect critical areas and resource lands,
- have development regulations consistent with their comprehensive plans,
- approve subdivisions and short plats only if written findings are available, or if adequate provisions are made for public health, safety and welfare, and
- ensure an adequate water supply for any building permit application.

Counties and cities fully planning under GMA must also develop comprehensive plans according to the goals and requirements within four years of the date they were required to, or chose to, plan. They are also required to have development regulations that are consistent with their comprehensive plans by the same deadline. They can request a sixmonth extension of this deadline.

Table 3.3
Washington's Counties: Comparative Growth Rates and
Participation in the Growth Management Act (chapter 36.70A RCW)

County	1998 Population	Ten-year Growth Rate		GMA Par (ye:	
e an Charles Com Antares esselves was the received a resource	er och teknik och et stattet til et stattet til et et stattet och som er til stattet til til et et stattet. E	1981-1991	1988-1998	required	opted in
Adams	15,900	5.34	13.57	·	•
Asotin	20,000	4.71	14.94		
Benton	137,500	1.23	32.08		1990
Chelan	62,600	15.15	25.96	1990	
Clallam	66,700	11.43	22.61	1990	1
Clark	328,000	27.83	52.91	1990	
Columbia	4,200	0.00	2.44		1991
Cowlitz	93,100	3.73	15.65		
Douglas	31,400	20.61	30.29		1990
Ferry	7,300	8.33	19.67		1990
Franklin	44,400	5.18	25.07	·····	1990
Garfield	2,400	-4.17	0.00		1991
Grant	69,400	16.13	31.94	1992	
Grays Harbor	67,900	-2.54	7.10		
Island	72,500	38.72	35.77	1990	
Jefferson	26,500	30.12	42.47	1990	
King	1,665,800	17.75	17.82	1990	
Kitsap	229,000	25.32	29.16	1990	
Kittitas	31,400	9.16	25.60		1990
Klickitat	19,100	3.70	15.06		
Lewis	68,600	6.70	19.51	1994	
Lincoln	10,000	-7.29	3.09		
Mason	48,300	25.08	31.25	1990	
Okanogan	38,400	10.03	21.14		
Pacific	21,500	7.87	22.16		1990
Pend Oreille	11,200	4.55	27.27		1990
Pierce	686,800	20.45	25.40	1990	
San Juan	12,600	32.10	31.25	1990	
Skagit	98,700	27.57	39.41	1990	
Skamania	9,900	4.94	23.75		
Snohomish	568,100	36.95	36.73	1990	·
Spokane	410,900	5.28	16.04	1994	
Stevens	37,600	6.78	24.50		
Thurston	199,700	30.13	33.76	1990	
Wahkiakum	3,900	-13.15	11.43		
Walla Walla	54,600	2.92	13.04		1990
Whatcom	157,500	20.29	32.24	1990	
Whitman	41,400	-4.70	6.15		
Yakima	210,500	8.86	12.99	1994	
Total State	5,685,300	17.65	24.54	na	na

One of the first steps in implementing GMA is for cities and counties to collaboratively establish countywide planning policies as a framework for developing their new comprehensive plans.

As a minimum, the countywide planning policy must provide for:

- the establishment of the urban growth management area (UGAs) for the county
- contiguous and orderly development, including urban services to newly-developed areas
- the siting of public facilities of a county or statewide nature, including transportation facilities of a statewide nature
- countywide transportation facilities and the development of transportation strategies
- the consideration of affordable housing for all county and city residents
- joint county and city planning within the UGAs
- · countywide economic development and employment, and
- an analysis of the fiscal impact.

The UGAs contain the cities, and other areas outside of the cities only if these areas are characterized by urban growth or adjacent to areas characterized by urban growth. The UGAs need to include sufficient land to accommodate the Office of Financial Management's population projection for the next 20-year period. The UGA should permit urban densities and include open space and greenbelts. Under the Growth Management Act (GMA), those local governments fully planning under the Act must adopt a comprehensive land use plan and development regulations that implement the goals of the plan. The GMA provides guidance for local governments in the adopting of goals and policies for the protection of the environment including groundwater protection from point and nonpoint pollution, flooding, and stormwater control, where necessary. The GMA also requires that local governments include the best available science in the designation and protection of critical areas including frequently flooded areas, fish and wildlife conservation areas, and critical aquifer recharge areas. RCW 36.70A.070(1) states that where applicable, local governments must protect ground water, must address drainage, flooding and stormwater, and must guide corrective actions to mitigate or cleanse those discharges that pollute waters of the State, including Puget Sound or waters entering Puget Sound.

The State uses both incentives and enforcement to assure compliance with both the SMA and GMA. Grants are provided to local governments to help implement the acts. SMA grants are provided through Ecology, and GMA grants come from the Department of Community, Trade and Economic Development (CTED). In addition, counties fully planning under GMA and cities are allowed to require "impact fees" from developers to help pay for new facilities — roads, public parks, open space, recreation facilities, and schools.

Jurisdictions that do not meet GMA deadlines or are found by the Growth Management Hearings Board to be non-compliant with the GMA become ineligible for certain state grant and loan programs, including the Public Works Trust Fund, Community Economic Revitalization Board funds, Centennial Clean Water Fund, or any state grant or loan program that funds capital facilities projects.

In summary, the State can manage land use in a manner consistent with several of the Management Measures, through the coordinated use of SEPA review on projects, SMA's shoreline master program, and regulations under GMA.

Managing Nonpoint Pollution through Incentives and Regulations

Along with the laws managing land use, several laws regarding the environment govern public activities. These provide supplemental authorities to manage nonpoint pollution, including some of the major pieces of environmental legislation in the State. They tend to be more focused on specific sources of nonpoint pollution, and may manage nonpoint pollution in an indirect way. A summary of some of these major laws follows. (Table 3.4)

The Administrative Procedures Act (APA) sets requirements and procedures for all State agencies to follow in decision-making. The APA covers such concepts as the promulgation of rules, the use of regulations, public involvement in agency decision making, and public disclosure.

Upon granting Washington statehood in 1889, the United States ceded ownership of all aquatic lands to the State. Aquatic lands are defined as the tidelands, shorelines owned by the State, and the beds of all navigable waters. Unlike many other states, Washington chose to maintain its aquatic lands in public ownership, leasing lands to private persons when in the best interest of the State. The Aquatic Lands Acts provide the framework for managing the State's aquatic lands by the State Department of Natural Resources (DNR).

These lands are to be managed to maximize public benefit by:

- encouraging direct public use and access
- fostering water-dependent uses
- ensuring environmental protection, and
- utilizing renewable resources. (RCW 79.90.450).

The acts also form the basis for DNR's Aquatic Lands Strategic Plan. Uses of aquatic lands are controlled through lease contracts. Proceeds are used for improving aquatic lands, including supporting grant funding for marine sewage facilities. The Aquatic Lands Acts comprise seven chapters in the RCW: Chapters 79.90 through 79.96 RCW, inclusive. Each act focuses on a different type or use of aquatic land.

Table 3.4 Washington's Laws Governing Nonpoint Pollution

Statutory Title of Chapter	Chapter in RCW	Chapters in WAC of
(if no title, subject in italics) Administrative Procedures Act	34.05	Regulations
	79.90	
Aquatic LandsIn General		•
Aquatic LandsEasements and Rights of Way	79.91	
Aquatic LandsHarbor Areas	79.92	
Aquatic LandsWaterways and Streets	79.93	
Aquatic LandsTidelands and Shorelands	79.94	•
Aquatic LandsBeds of Navigable Waters	79.95	
Aquatic LandsOysters, Geoducks, Shellfish and Other Aquacultural Uses	79.96	
Center for Sustaining Agriculture and Natural Resources	15.92	
Clean Air Washington Act	70.94	
Conservation Districts Law	89.08	
Construction Projects in State Waters "Hydraulic Code"	75.20	220.110
Dairy Nutrient Management Act	90.64	none
Department of Ecology	43.21A	none
Environmental and Forest Restoration Act	43.21J	none
Forest Practices Act	76.09	173-202, 222-24, 222- 30, 222-34, 222-38
Growth Management Act	36.70A	
Hazardous Substance Information	70.102	none
Hazardous Waste Management Act	70.105	173-303
Highway Related Storm Water Control	90.78	
Integrated Pest Management	17.15	
Marine Plastic Debris	79.81	
Model Toxics Control Act	70.105D	173-340
Oil and Hazardous Substance Spill Prevention	90.56	1,2,5,0
and Response Act	50.50	
On-site Sewage Disposal	70.118	246-272
Pesticide Application Act	17.15	2.02.2
Pesticide Control Act	15.58	16.228
Phosphorus in Detergents	70.95L	none
Public Lands Act	79.01	I NORC
Puget Sound Water Quality Protection	90.71	400-12
Reforestation	76.12	700-12
Regulation of Recreational Vessels	88.12	
Sales and Leases of Public Lands and Materials	79.12	
Salmon Enhancement Program	75.50)
	·	
Salmon Recovery Act	75.46	<u> </u>

FINAL: Washington's Nonpoint Source Management Plan

Shoreline Management Act	90.58	173-16, 173-26*
Solid Waste ManagementReduction and	70.95	
Recycling Act		
State Environmental Policy Act	43.21A	197-11
Stewardship of Nonindustrial Forests and	76.13	
Woodlands		
Used Oil Recycling Act	70.95I	·
Waste Reduction, Recycling, and Model Litter	70.93	
Control Act		
Water Pollution Control Act	90.48	
Watershed Planning Act	90.82	
Worker and Community Right to Know	49.70	296-62

^{*}Proposed ·

Aquatic Lands-- In General: Provides the definitions and general guidance for the basic framework to manage aquatic lands. Sets the basis for aquatic lands as maximizing the public benefit.

- Aquatic Lands--Easements and Rights of Way: Governs the use of aquatic lands in the construction of bridges and other crossings of waterways such as sewer and water lines. Permits are required to obtain these rights of way. In addition, all bridges and similar structures must receive a permit from DNR before construction.
- Aquatic Lands--Harbor Areas: Governs the designation and uses of harbor areas.
 Designates terms for leases for construction of docks, wharves and other improvements related to commerce.
- Aquatic Lands--Waterways and Streets: Governs the use, conversion or modification
 of waterways, and specifically sets the conditions to convert a waterway to a street
 within urban areas. Requires a permit for conversions. Limits conversion to 100 feet
 per street.
- Aquatic Lands--Tidelands and Shorelands: Governs the use of tidelands, allows for the platting of tidelands at the discretion of DNR. Authorizes the sale or lease of tidelands. Limits sale of tidelands to public corporations, such as municipalities. Specifies terms for conveyance of tidelands to the United States for a naval base.
- Aquatic Lands--Beds of Navigable Waters: Governs the use of all beds of navigable waters. Requires permit from the federal Corps of Engineers. DNR may also review specifications for improvements. Sets lease forfeiture if lands are not used for two years.
- Aquatic Lands--Oysters, Geoducks, Shellfish and Other Aquacultural Uses: Governs the lease of tidelands for shellfish harvest. Requires inspection and certification by

the Department of Fish and Wildlife before leasing. Establishes triple damages for unlawful take of shellfish.

The Center for Sustaining Agriculture and Natural Resources set up three programs to encourage integrated pest management. The focus of these programs is research for newer, more innovative methods of pest management. As research programs, all are associated with Washington State University. These programs are:

- The Center for Sustainable Agriculture
- The Food and Environmental Quality Laboratory
- The Commission on Pesticide Registration

The Clean Air Washington Act provides the framework for controlling air pollution in the state. The Act:

- Authorizes Ecology to seek delegation for implementing the federal Clean Air Act
- Provides for the promulgation of rules to limit emissions;
- Authorizes the establishment of local clean air authorities, which may issue rules more stringent than Ecology's;
- Prohibits the open burning of certain materials, including petroleum products, rubber products, plastics, paper, cardboard, dead animals, and construction debris;
- Prohibits open burning in urban areas, limits open burning in other areas according to season and/or weather conditions; and
- Requires permits for combustion facilities such as solid waste incinerators and industrial plants.

Air emissions regulated under this act are the major source of atmospheric deposition, an identified cause of nonpoint pollution.

The Conservation Districts Law establishes both the state Conservation Commission and local conservation districts. Conservation districts are organized to provide research, technical assistance, and financial assistance to landowners in the conservation of the renewable natural resources of the State, including water and soil. As part of their efforts in soil conservation, the districts are to encourage the reduction in the volume of runoff.

Chapter 75.20 RCW governs Construction Projects in State Waters. It is commonly called the "Hydraulic Code." This act requires a permit from the Department of Fish and Wildlife to build any structure in State waters. These structures may be anything from wharves for commercial use to shoreline stabilization and concrete bulkheads for single family dwellings. This law also establishes a Hydraulic Appeals Board for permits that are denied and limits permit denial to those cases where the construction would harm fish stocks.

The Department of Ecology is established in Chapter 43.21C. Ecology was created in 1973 by combining the Department of Water Resources, the Water Pollution Control Commission, and the Air Pollution Control Board. Ecology was also delegated the Solid Waste Management Program. Subsequently, Shorelands, Hazardous Waste, and Toxics Cleanup were added as the enabling legislation passed for each. Ecology is authorized to

promulgate rules, issue grants and provide technical assistance. Specific reference is made to grants to control noxious aquatic weeds such as milfoil, purple loosestrife, and hydrilla. Ecology is required to prepare and adopt a development plan for the State, including managing urban and agricultural pollution sources. Ecology is also required to review the environmental projects of other State agencies.

The Environment and Forest Restoration Act establishes a grant program to fund local governments and nonprofit organizations who perform stream restoration work. The vision of this act has been implemented by DNR in the Jobs for the Environment (JFE) program. JFE, along with similar programs in the Interagency Committee for Outdoor Recreation (IAC), Conservation Commission, State Department of Fish and Wildlife (WDFW), and Ecology, has funded or performed both in-stream and riparian restoration projects. These projects have generally followed the specifications of the Natural Resource Conservation Service (NRCS) and have used vegetative treatment systems.

The Forest Practices Act governs the harvest of timber on both State-owned and public lands. Under the federal consistency provisions of the Clean Water Act, the U. S. Forest Service would also be required to manage its harvest in a manner consistent with this act. The act established a Forest Practices Board, whose chair is the Commissioner of Public Lands. The Board is authorized to promulgate rules regarding forest practices in the state. Forest Practices rules affecting water quality are adopted by reference by Ecology. The Forest Practices Act also requires a permit to harvest timber in the state, and requires reforestation of all cut lands within three years of harvest.

As part of the State's efforts to prevent pollution through public education, chapter 70.102 RCW establishes the Hazardous Substances Information Office within Ecology. The office tracks discharges from point and nonpoint sources of pollution. The office also prepares the State's Toxic Release Inventory and manages the Community Right-to-Know Program as described in 42 USC 11023.

The Hazardous Waste Management Act is the State's counterpart to subtitle C of the federal Resource Conservation and Recovery Act (RCRA: 42 USC 6921 et seq). The Hazardous Waste Management Act authorizes Ecology to seek federal delegation for RCRA. The act also authorizes Ecology to promulgate rules regarding the generation, storage, transport and disposal of hazardous waste as well as waste manifesting and tracking. The act requires local governments to set up programs to manage household hazardous waste (HHW), including the collection and disposal of HHW.

The act regarding *Highway-Related Stormwater Control* establishes a planning, coordination and grants program from the State Department of Transportation. The purpose of the act is to identify and prioritize State, county and local roads which need upgrades to their stormwater systems, and to provide funding to construct those upgrades.

Integrated Pest Management is defined in Chapter 17.15 RCW. This law also requires all state agencies which own property to design and implement integrated pest management strategies for their lands.

A plan to manage Marine Plastic Debris was submitted to the Commissioner of Public Lands in 1988. Chapter 79.81 RCW authorizes DNR to coordinate the implementation of the plan. The plan includes educational programs, prevention programs, and beach cleanup activities. Additionally, in the act, DNR is authorized to receive monies and give grants as funding is available.

The Model Toxics Control Act (MTCA) is one of the major environmental laws in the State which was enacted as a result of an initiative by the people. MTCA is the state's counterpart to the federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly called Superfund. MTCA contains the policy and procedures to undertake and complete hazardous waste cleanups in the State. In addition, MTCA authorizes Ecology to distribute grants to local governments for solid and hazardous waste management and remedial action at contaminated landfills. These grants are currently being distributed through the Coordinated Prevention Grants program at Ecology.

The Oil and Hazardous Substance Spill Prevention and Response Act (OSPRA) combats spills of oil and other hazardous substances into the waters of the State from the merchant and military fleets which travel in Washington's waters. The act authorizes Ecology to promulgate rules on the handling of oil and hazardous substances on marine vessels, to prevent spills as much as possible. The act also authorizes Ecology to assess and collect damages and fines for spills which do occur.

The responsibility to manage *Onsite Sewage Disposal* Systems (OSDS) is delegated to local governments in chapter 70.118 RCW. Local health districts are to issue permits for the construction of OSDS and monitor performance of existing systems. Local governments may also provide technical and financial assistance to landowners to repair and/or upgrade their septic system. Financial assistance comes from sewer rates and the State Revolving Fund. The State Department of Health is responsible to establish design, construction, and operating standards for OSDS. These standards can be found in Chapter 246-272 WAC.

The Pesticide Control Act authorizes the State Department of Agriculture (WSDA) to implement a program that is at least as rigorous as the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA: 7 USC 136 et seq). The Pesticide Control Act sets the general procedures for registering a pesticide, and suspending or revoking a pesticide registration. The authority to implement the State's pesticide collection system is also in the act, as well as procedures for the licensing of pesticide dealers and pest consultants. The act authorizes the department to pursue "stop sale" orders on unsafe pesticides and to levy civil penalties for misuse of pesticides.

The Pesticide Applicators Act provides general procedures for the licensing of pesticide applicators. The scope of the act includes commercial and private applicators, and applications for research. To receive their license, applicators must complete educational and testing requirements and pay a fee. Their work is subject to routine inspection by

WSDA. The department is authorized to suspend or revoke licenses for violations of the act, and may pursue civil penalties in the case of illegal applications. In addition, the act also creates a board to advise WSDA in pesticide-related issues.

Chapter 70.95L RCW limits the amount of *Phosphorus in Detergents* in an attempt to control eutrophication in rivers and lakes. The act prohibits the sale or distribution of laundry detergents with more than 0.5 percent phosphorus by weight and dishwashing liquid with more than 8.7 percent phosphorus. This act limits the amount of phosphorus from household sources.

The Public Lands Act governs the sale and lease of state-owned lands. Lands can be sold to support educational institutions. Timber and mineral rights are to be sold separately from the land itself. State land can be leased for crop production, grazing, coal mining, sand and gravel mining, or seaweed gathering. The act also establishes the procedures for the State to acquire unused railroad rights of way. The act requires the establishment of ecosystem standards which must be followed on lands leased for agriculture and grazing.

In 1996, the Puget Sound Water Quality Authority (PSWQA) was discontinued under Washington's Sunset Act (chapter 43.131 RCW). The Puget Sound Water Quality Protection Act, enacted that year, enabled the work of PSWQA to continue through the new Puget Sound Action Team (PSAT) in the Office of the Governor. PSAT is required to oversee the implementation of the Puget Sound Water Quality Management Plan, last updated in 1994. Each biennium, the PSAT prepares a work plan that includes all State agencies implementing the plan for submission to the legislature. In addition, the PSAT is authorized to give grants and educate the public on issues related to the water quality in Puget Sound. The PSAT is also responsible to track implementation of the State's Salmon Recovery Plan within Puget Sound. A discussion of the elements of the Puget Sound Plan as they relate to the implementation of the management measures is found in the previously submitted coastal nonpoint strategy: "Washington's Nonpoint Strategy: CZARA 6217, Revised June 30, 1996.

Chapter 76.12 RCW authorizes DNR to acquire lands for the purpose of *Reforestation*. Lands can then be held in trust as forest lands, or ceded to county governments for use as parks. Acquisitions or land exchanges can also be used to "block up" State forest lands into larger, more compact holdings.

In addition to safety and traffic laws for pleasure boats, the *Regulation of Recreational Vessels* provides funding and authorization to the State Parks and Recreation Commission for educating boaters on methods and techniques for boat maintenance and use which are appropriate for the environment. This act also provides funding and the framework for the grants for marine sewage pumpout stations, including a provision for maintenance of the facilities.

The act regarding Sales and Leases of Public Lands and Materials, a supplementary statute to the Public Lands Act, authorizes the lease of land for electronic transmission repeater stations and share-cropping leases for agriculture.

The Salmon Enhancement Act establishes Regional Fisheries Enhancement Groups. These nonprofit organizations identify problems in fish habitat and fish barriers in streams. They also organize projects to rectify the problems, generally using some form of stream or riparian restoration. These groups may receive grant funding from various sources, including a number of State agencies.

The Solid Waste Management -- Reduction and Recycling -- Act governs all aspects of the collection, transportation, storage (if any), and disposal of solid waste in the State. It is the State's counterpart to subtitle D of the federal Resource Conservation and Recovery Act, mentioned above in the discussion of the Hazardous Waste Management Act. The act requires counties to prepare comprehensive solid waste plans, which are then approved by Ecology. Plan approval makes counties and their respective cities eligible for grants under the Local Toxics Control Account. The act also governs the design and operation of solid waste landfills and facilities. In addition, the discard of solid waste into the environment is prohibited. Local health districts and departments are given primary enforcement and permitting authority for solid waste landfills, facilities, and illicit dumping.

The act regarding Stewardship of Nonindustrial Forests and Woodlands requires DNR to establish an office to provide technical and financial assistance to small forest landowners in complying with the environmental requirements of the Forest Practices Act.

The Used Oil Recycling Act provides for the collection and disposal of used oil. It prohibits the disposal of used oil and materials containing recoverable used oil except by recycling. The use of oil as a dust suppressant is explicitly prohibited.

The Waste Reduction, Recycling, and Litter Control Act provides for the collection, transportation, and disposal of solid waste that has been illicitly introduced in the environment. Littering is prohibited in all areas of the State. Funds are provided for public education and litter pickup. A broad range of agencies can enforce the anti-litter provisions of the act.

The Water Pollution Control Act (chapter 90.48 RCW) provides broad authority to issue permits and regulations, and prohibits all discharges to water. The act openly declares that it is the policy of the state to maintain the highest possible standards to ensure the purity of all the waters of the state and to require the use of all known, available, and reasonable means to prevent and control water pollution. The act defines waters of the state and pollution and authorizes the Department of Ecology to control and prevent pollution, to make and enforce rules, including water quality standards. The act also designates Ecology as the state water pollution control agency for all the purposes of the federal Clean Water Act. Under this statute, Ecology is authorized to administer

wastewater disposal permits and to require prior approval of plans and proposed methods of operation of sewerage or other disposal systems.

The Worker and Community Right to Know Act was passed in response to federal legislation in Title III of the Superfund Reauthorization and Amendment Act. The specific requirements of the Community Right to Know provisions can be found in 42 USC 11023. The Hazardous Substance Information Office established in chapter 70.102 RCW manages the State's Community Right to Know program. By educating and providing information to the public regarding the proper use and disposal of toxic chemicals, this program acts to prevent nonpoint pollution from these sources.

Polluting Water and Enforcement

As demonstrated by the previous discussion, a myriad of laws governs nonpoint pollution. However, the real challenge lies in the enforcement of these laws. Due to the cumulative nature of nonpoint pollution, it may be traced back to several sources, or even be untraceable. In addition, since nonpoint pollution encompasses so many different types of sources, contributors are spread across the entire landscape, each adding its incremental pollution load.

A permitting and inspection program for so many diverse sources is beyond State resources to manage. Some specific sources, such as dairies, do have inspection programs. All sources are governed by the State's Water Pollution Control Act (chapter 90.48 RCW). This act is a key tool in enforcing against polluters that impact the state's waters. Many or most of these enforcement actions are based on a very broad, general prohibition against discharges into water found in the act:

"It shall be unlawful for any person to throw, drain, run, or otherwise discharge into the waters of this state, or to cause, permit or suffer to be thrown, run, drained or allowed to seep or otherwise discharged into such waters any organic or inorganic matter that shall cause or tend to cause pollution of such waters according to the determination of the department, as provided for in this chapter." (RCW 90.48.080)

Here are the problems with enforcing such a broad prohibition:

- There is no backup federal authority. The federal Clean Water Act limits its enforcement provisions to a "discharge of pollutants" from "any point source." (33 USC 1322)
- It may be that no one site may cause sufficient pollution to warrant enforcement. The pollution may be cumulative over many sites and sources. Who broke the law? The first to pollute; the one that actually caused violation of the water quality standards, even though that site may have released one of the smaller amounts?

- It is difficult to enforce on a whole community and expect significant change. The paradox of community-wide enforcement is demonstrated by the former 55 mph speed limit. If you enforce widely, you will have one of two results: (1) you will achieve high compliance, or (2) you will have your enforcement powers restricted or the law you are enforcing repealed. In the case of the speed limit, option number two happened.
- It is also difficult to link a single discharge to a particular pollution problem without extensive water quality monitoring, which can be expensive and divert resources from more effective approaches. There is an equity issue: enforcement must prevent any advantage, economic or otherwise, that may result from breaking the law.

The application of the prohibition varies between categories of nonpoint pollution:

Enforcement in *Agriculture* is problematic. This category is the best example of many diverse sources contributing to a given pollution problem. The enforcement action is a reactive approach, occurring after the damage has been done. In addition, some BMPs may be too costly. For example, under the Food Quality Protection Act (FQPA), many pesticides are at risk for removal from the market. While removing them would aid the environment, in many cases, additional time and resources are needed to implement alternate pest management methods.

Enforcement in *Forestry* is based on the Forest Practices Act (FPA: chapter 76.09 RCW). The FPA is a permitting and inspection program administered by DNR. There are specific standards and practices found in Title 222 of the Washington Administrative Code (WAC). A forestry activity that is in compliance with its permit, the Forest Practices Act, and corresponding regulations is considered to be in compliance with the water pollution laws and standards as well.

Focus in *Urban Areas* is on waste management, and is generally the responsibility of local governments under the Waste Reduction, Recycling, and Litter Control Act (chapter 70.93 RCW) and the Solid Waste Management -- Waste Reduction and Recycling -- Act (chapter 70.95 RCW). These waste management acts have three key components for managing nonpoint pollution.

The first of these components is that there is a general prohibition in both acts against the illicit dumping of waste materials:

"No person shall throw, drop, deposit, discard, or otherwise dispose of litter upon any public property in the state or upon private property in this state not owned by him or her or in the waters of this state whether from a vehicle or otherwise including but not limited to any public highway, public park, beach, campground, forest land, recreational area, trailer park, highway, road, street, or alley except:

- (a) When the property is designated by the state or its agencies or political subdivisions for the disposal of garbage and refuse, and the person is authorized to use such property for that purpose;
- (b) Into a litter receptacle in a manner that will prevent litter from being carried away or deposited by the elements upon any part of said private or public property or waters. (RCW 70.95.060)

Unlike water quality laws, any law enforcement officer can enforce this prohibition, although it is generally local health districts or departments which manage the cleanup of illicit dumping of solid waste:

"In addition, state patrol officers, wildlife agents, fire wardens, deputy fire wardens and forest rangers, sheriffs and marshals and their deputies, and police officers, and those employees of the department of ecology and the parks and recreation commission vested with police powers all shall enforce the provisions of this chapter and all rules and regulations adopted thereunder..." (RCW 70.95.050)

If the waste dumped is hazardous, such as a pesticide, Ecology manages the cleanup and enforcement under the Model Toxics Control Act (chapter 70.105D) and the Hazardous Waste Management Act (chapter 70.105 RCW).

Illicit dumping of solid waste is a civil infraction. Penalties include fines of up to \$500 per incident and cost of cleanup. The penalty for the illicit dumping of hazardous waste can be civil or criminal, depending on the specifics of the case. Enforcement can be taken for even minor quantities; there is no lower limit. The limitation on enforcement is that of the resources of the enforcing agency or jurisdiction.

The second component for waste management is the permitting of waste disposal sites. Solid waste disposal sites are permitted by local health districts or departments. In the Solid Waste Act, Ecology is designated to promulgate the standards which all disposal facilities must meet, paying special attention to preventing the dispersion of the collected waste. Ecology may also appeal a solid waste facility permit issued by a health district or department that it considers inadequate.

The third component of Solid Waste Management is the requirement for all counties to prepare a plan to manage all forms of solid waste within their jurisdictions, including cities within the county. The plan must contain a component to manage hazardous waste from household and small businesses. It must be updated regularly and approved by Ecology for counties and cities to receive grants under the Local Toxics Control Account.

Although the waste management laws provide a substantial web of enforceable authorities, the prohibition in RCW 90.48.080 may also be used if any of these materials enters any waters of the State.

Several laws govern the *Hydromodification* and *Recreation* categories: the seven Aquatic Lands Acts, the "Hydraulic Code" (HPA) and the Shoreline Management Act (SMA). These acts work together to manage activities along more than 3,000 miles of State shorelines, from both a landward and a seaward perspective. The HPA and SMA both require permits for activities at the water-land interface. Permits under HPA, issued by the State Department of Fish and Wildlife, place conditions on projects below the high water mark. Permits can be denied or conditioned only to protect fish. Many actions that may threaten fish would also impact water quality and may be limited or prohibited in the HPA permit. Permits under SMA are for projects above the high water mark. SMA permits can be issued by local governments or Ecology. Some types of major projects, such as highway bridge construction, are directly permitted by Ecology.

All waterfront activities must receive one or both of these permits. In addition, if the land will be used for a marina, aquaculture, or other ongoing aquatic activity, the applicant must obtain a lease from DNR. Leases are issued when it is in the best interest for the public good.

As a policy, DNR includes all conditions on the HPA and/or SMA in the terms of the lease. A violation of the permit is also a violation of the lease and can invoke not only enforcement action from the regulatory agencies, but lease revocation and eviction by DNR.

An advantage of the leases is that their conditions can be enforced when the State's regulations can't be, such as with a federal agency. Thus, for a violation or polluting activity, DNR can evict, where other agencies cannot act. Each of the permits and the lease must go through the SEPA process where mitigation measures can be required for any action threatening the environment.

Finally, as the last category, wetlands and riparian areas are governed as land uses and thus fall under SEPA, GMA, and SMA. In addition, certain projects in this category also fall under the Hydraulic Code.

But, as mentioned at the beginning of the section, as a complement to the preventive and regulatory laws discussed in this section, if a pollutant actually enters the waters of the State of Washington, the prohibition in the Water Pollution Control Act can be used to penalize those responsible. A summary of the 206 enforcement actions against nonpoint sources during the 1997 - 1998 time period follows to illustrate the use of this law.

Table 3.5
Enforcement Actions on Nonpoint Sources
under the Washington State Water Pollution Control Act
(Chapter 90.48 RCW)
1997 -1998

Category of Source	Notices of Violation	Orders	Penalties
Agriculture	9	33	18
Commercial	5	19	33
Construction	13	1	25
Hydromodification	1	2	2
Municipalities	5	12	5
Roads, Highways & Bridges	8	4	4
Total	41	75	90

(Source: Ecology violation tracking database.)

By comparison, 53 Notices of Violation, 66 Orders and 88 Penalties for a total of 207 actions were taken against point sources during the same period.

Although the general prohibition is the most used aspect of the Water Pollution Control Act, the original framework of the water quality management system in the State has three components similar to those of the solid waste system: a general prohibition (previously discussed), a planning requirement for local governments, and a permitting system for wastewater treatment plants. These activities have not been integrated as completely as for the solid waste system. Permitting of wastewater treatment facilities is, of course, a point source activity, and therefore, out of the scope of this plan.

The Sewer Basin Planning process is established in RCW 90.48.280. The sewer basins established by Ecology correspond to WRIAs. Chapter 372-68 WAC requires these water pollution control and abatement plans to address current and future water pollution control needs including collection systems and treatment facilities. In addition, these plans should include discussion and location of other sources of water pollution including such as municipal, agricultural and industrial wastewaters; stormwater and erosion; onsite sewage; dredging and river impoundments; and wastes from vessels and marinas. Many of these considerations encompass sources of nonpoint pollution. However, the relationship of these plans to more recent mandates is unclear. These requirements could be subrogated to or superceded by the Watershed Planning Act, chapter 90.82 RCW.

Chapter 4

Current Programs to Control Nonpoint Sources of Pollution

This chapter includes a description of major state and federal programs to address surface water, ground water, and aquatic habitat in Washington. Several of these programs are driven by the need to protect key resources. (See Chapter 7.) They cover planning and implementation at a variety of scales. Each of these programs is vital to the State's efforts to address nonpoint source problems.

State Programs: The Watershed Planning Act

The Watershed Planning Act (WPA) is found in chapter 90.82 RCW and is often referred to by its bill number (HB2514). It establishes a watershed management process to assess availability of water, develop in-stream flow levels, protect water quality, and restore fish habitat. Another primary purpose is to assist planning units to address Endangered Species Act and Clean Water Act concerns, if they so choose. Grants are available to local planning units in three phases:

- 1) Organizing the planning unit and determining the scope of planning to be conducted,
- 2) Conducting watershed assessments, and
- 3) Developing a watershed plan.

Planning units are required to assess water supply and develop strategies for future use. They may decide to develop strategies for in-stream flows, water quality, and habitat. Part of the planning units' charge is to review historical data. This includes planning, projects, and activities that have already been completed, as well as the products and status of those that have been initiated but not completed. The intent is a sort of gap analysis, so that products are incorporated and work is not duplicated.

At the time of this writing, 39 of the 62 WRIAs have begun the Watershed Planning process. Fifteen have elected to include water quality in the scope of their assessment and planning. Additional planning units will be created after the current legislative session is complete. The goal is for all WRIAs in the state to eventually be incorporated into the WPA process.

Salmon Recovery Act

A second major planning process is the Salmon Recovery Act (SRA) (found in Chapter 75.46 RCW), also known as SB 5595. The intent of this legislation is to address salmonid habitat restoration in a coordinated manner, and to develop a structure that

allows for the coordinated delivery of federal, State, and local assistance to communities for habitat projects.

Under the SRA, a committee is formed involving all restoration interests. A limiting factors analysis is carried out with the assistance of State fish biologists. The committee is provided with the analysis and information related to fish distribution, habitat requirements and limitations, and in-stream flow data and recommendations. They use that information to identify viable habitat restoration projects and potential funding sources. Then they develop a prioritized project list and a schedule that they feel will produce habitat capable of sustaining healthy salmon populations. Each schedule is updated on an annual basis, and projects may be added. An interagency review team receives legislative appropriations for grants.

Forty-one WRIAs are now involved in limiting factors analyses, anticipated for completion in 2001. Eleven areas have actually formed committees to undertake the full SRA process. It is anticipated that the area of involvement will be expanded when cutthroat trout are ESA listed.

Local governments are working to coordinate the Watershed Planning Act and the Salmon Recovery Act. The data and habitat information generated during the SRA process can provide baseline information to a WMA planning unit for the in-stream flow and optional habitat plans. The WMA is responsible for the long-term watershed planning. The SRA is designed to see that habitat restoration funding is wisely spent.

Together, these two processes are the foundation of long-term watershed planning in Washington. Both rely on local governments assuming responsibility for planning and action. Both bring together various levels of government, tribes, conservation or special districts, nonprofit groups, citizens, and others. Both are funded through the State legislature. These are big efforts that involve a major commitment from all the interests.

Statewide Strategy to Recover Salmon

In January, 1999, the Joint Natural Resources Cabinet released a complete working draft of *Extinction is Not an Option: A Statewide Strategy to Recover Salmon*, a guide for what needs to be done to recover salmon. During the past eight months the Joint Cabinet has carefully listened to pubic comment on the strategy and has indicated recommendations that would improve our collective efforts to recover salmon.

The 1999 state legislature passed Senate Bill 5595, the Salmon Recovery Funding Act, which required the Governor to submit the strategy to the National Marine Fisheries Service and the U.S. Fish and Wildlife Service by September 1, 1999. The legislation also requires the Governor to begin revision of the strategy in September 2000, through public outreach efforts.

An Early Action Plan has been developed which specifies activities related to salmon recovery that state agencies will undertake in the 1999-2001 biennium. Also included are

expected outcomes from those actions and performance measures. Many of the early actions are nonpoint source control activities. To ensure consistency between the Salmon Strategy and the Nonpoint Plan, we have incorporated 50 actions from the Salmon Strategy as recommendations in this plan.

Forests and Fish Report

The Forests and Fish Report is the result of negotiations between landowners, federal and state agencies, local governments and some tribes. It contains recommendations to enhance forest practices in the state to improve water quality and fish habitat. The Forests & Fish Report, dated April 29, 1999, has been submitted to the Forest Practices Board. Following the Forest Practices Board meeting of September 29, 1999, DNR and the Board drafted emergency rules consistent with the Report and the emergency rules will be out for public review, following the filing with the state code reviser, by October 20, 1999. The Board is expected to take action before the end of February, 2000 on the proposed emergency rules that are consistent with the Forests & Fish Plan. Permanent rule making by the Forest Practices Board has also started. The Forests & Fish Report will help focus SEPA EIS analysis.

The legislature enacted legislation (Chapter 247, Laws of 1999) which requires the Board to adopt regulations consistent with the report. In addition, assurances have been received from NMFS, USFWS, and EPA that the recommendations, if implemented, meet the requirements of the ESA and CWA. The Forests and Fish report addresses two key water quality concerns on forest lands:

• Streamside Management Areas will be increased to include a 50 foot "no-touch" zone where harvest will be prohibited, plus an inner and outer zone which allow some harvest. The goal of the streamside management areas is to create riparian conditions that will meet the stand characteristics of a mature riparian forest at approximately 140 years of age. The attainment of resource objectives for fish bearing streams includes protections for stream temperature and producing adequate levels of large woody debris and nutrients, such as detrital material, to meet habitat objectives. The buffers will also reduce sediment and protect streambanks. These zones will be designated using a formula which is a function of the 100-year potential height of the resident forest, the width of the stream, and other ecosystem and site characteristics. The inner zone will allow some thinning of trees, and the outer zone will allow more significant harvest. Specific standards are established for western and eastern Washington.

Protection measures will also be provided to non-fish bearing streams as they are considered waters of the state, and can deliver water, organic matter, and sediments to fish habitat. Non-fish streams will fall into two categories: perennial and seasonal. Perennial non-fish habitat streams will have a 50-foot wide no harvest buffer on each side of the stream for at least 50% of their length. The buffering could increase up to 100% where sensitive sites such as perennial seeps, springs, unstable inner gorge slopes, alluvial fans and perennial stream intersections occur. All sensitive sites will

receive buffering to protect perennial waters and amphibian habitat. A 30-foot equipment limitation zone on each side will border any remaining perennial and all seasonal non-fish habitat streams. This zone is designed to preserve streambank vegetation, prevent bank erosion and significantly limit the potential for sediment delivery to the streams. The eastside non-fish habitat stream protection will be equal to the westside strategy but will allow for a continuous buffer for the entire stream length with limited entry.

• A roads plan will be required of all major forest landholders in the State. The plan will identify and prioritize roads to be repaired and abandoned. Special emphasis will be on culvert replacement and abandonment of roads near or in riparian areas. Plans will also focus on future road development and methods to minimize road densities in forestlands. Timelines for repair and abandonment projects will be established in the plan, with annual reports submitted to DNR. Buffering would also be required in sensitive, unstable areas such as springs, headwalls, etc.

Additional efforts will be focused on identifying and protecting unstable slopes, improvement in the classifications of and protection for streams to include streams that have the potential for fish presence once the instream and habitat conditions have recovered, pesticide applications, wetland protections, watershed analysis, and development of alternate plans that will provide public resource protection equal to the standard Forests & Fish Report. In addition, the Report recognizes that current scientific knowledge lacks answers to some water quality and fish habitat resource questions. Specific technical research projects are listed in the Report and an adaptive management process is recommended for completing those projects. The process includes planning, budgeting, and project management along with technical and policy review and dispute resolution. The recommendations place final authority in the hands of the Forest Practices Board, with federal agency oversight to determine whether the Board is responding to the new scientific findings.

The Forests and Fish Report was adopted by the legislature in 1999 and is embodied in HB 2091. The Forest Practices Board was directed to develop new rules that codify the agreements in the report. Funding was provided for implementing the bill and incentives were provided to forest landowners.

The Forests and Fish Report is part of the overall salmon recovery strategy for the state. The Governor's office has recently released a draft of this strategy, entitled <u>Extinction is Not an Option</u>.

The Dairy Nutrient Management Act

The 1998 legislature overhauled the State's dairy waste program, creating the Dairy Nutrient Management Act from the previous Dairy Waste Management Act, chapter 90.64 RCW. In the new act, all dairies in the state are required to register with Ecology and prepare and implement a dairy nutrient management plan. Plans must be approved by the local conservation district and follow NRCS standards unless alternative methods

are established by the Conservation Commission or a Professional Engineer. Ecology must inspect all dairies in the state by October, 2000, and in response to any complaints regarding any dairy operation in the state.

The NRCS and local conservation districts first began planning for dairy waste management in the late 1960s. The primary focus was to protect non-contact waters (clean water) from livestock confinement areas. In the late 1970s and early 1980s, NRCS and CDs began to encourage and plan for long-term storage of wastes including diversion, collection, transfer, and application.

Under the Washington State 1998 Dairy Nutrient Management Act, all dairy farms licensed by the state Department of Agriculture are required to have comprehensive nutrient management plans approved by their local conservation district by July 1, 2002. The Act also requires both the dairy producer and local conservation district to certify these plans as fully implemented by December 31, 2003.

Based on the registration process, Ecology found in 1999 that 64 percent of all dairy farms have waste management plans and 54 percent of all farms are fully implementing these plans.

The 1998 act also required the Washington Conservation Commission to develop minimum elements for all of the nutrient management plans. They are:

- 1. A description of the dairy, its location, layout, herd size, and process wastes inventory;
- 2. A description of all system components, location, layout, size, and practices;
- 3. System operation and maintenance requirements;
- 4. A description of all waste application including an accounting of the nutrients available, crops applied to, fields and soil types applied to, and the amount and timing of process wastewater and process solids applications;
- 5. Use of a waste storage facility designed, constructed, operated, and maintained to meet all applicable practice standards and specifications found in the NRCS Service Field Office Technical Guide.

These minimum elements were approved by the Conservation Commission on December 2, 1998.

In 1999, the legislature passed Senate Bill 5803 establishing a Dairy Nutrient Management Task Force to review implementation of the 1998 Dairy Nutrient Management Act (Chapter 90.64 RCW). The Task Force, composed of legislators, agency representatives, dairy producers and an environmental organization, makes recommendations on issues such as Ecology's dairy farm inspection program, and development and implementation of dairy nutrient management plans. The law also requires Ecology to develop and distribute a document titled "How to Survive a Dairy Nutrient Management Inspection" before January 30, 2000.

Total Maximum Daily Loads (TMDL)

The Clean Water Act requires States to prepare a list of water bodies (called the 303d list) that do not meet water quality standards, every two years. Ecology uses data collected by agency scientists, tribes, State and local governments, industries, and others to develop the list. A TMDL, or water cleanup plan, must be developed for each of the impaired water bodies on the list. EPA must approve the plan.

A TMDL has five main components:

- identification of the type, amount, and sources of water pollution in a particular water body or segment,
- determination of the capacity of the water body to assimilate pollution and still remain healthy for its intended uses, such as agriculture, drinking water, recreation, industrial, and municipal uses.
- an allocation of pollution loading that will be allowed to meet water quality standards,
- a strategy to attain the proper loads, and
- a monitoring plan to assess effectiveness.

Ecology is working with EPA to address 303(d) listed water across the state. In most cases, TMDLs to clean up or prevent nonpoint source pollution involve a local planning effort and most implementation actions will be local projects.

Watershed Analysis

Timber, Fish, and Wildlife (TFW) cooperators developed Watershed Analysis to address the cumulative effects of forest practices on fish, water, and capital improvements. TFW cooperators include Indian tribes, landowners, environmental groups, counties, state and federal agencies. Ecology and the Forest Practices Board (WAC 222-22) have adopted it into regulation.

Watershed analysis is a biological and physical assessment of a watershed followed by development of "prescriptions" designed to protect and restore public resources. It evaluates forest practices as well as other land use activities in a watershed of 10,000 to 50,000 acres. An interdisciplinary team made up of certified state, tribal, or private resources conducts each analysis. Certification requires a minimal level of education and field experience, and the completion of a weeklong training course.

The analysis uses various modules: mass wasting, surface erosion, hydrology, riparian, stream channel, fish habitat, water quality, water supply/public works, and routing. The modules are then brought together, and prescriptions are developed and become tools for

improvements leading to compliance with water quality standards. DNR enforces these prescriptions as conditions on forest practice permits, through road maintenance plans or other means. Where land use activities other than forest practices harm water quality, the information is forwarded to the appropriate agency.

Before beginning an analysis in a watershed, DNR tells landowners, Indian tribes, agencies, and the public how they can participate or comment on drafts. The prescriptions developed through Watershed Analysis are approved by DNR after public comment through SEPA.

Puget Sound Water Quality Management Plan and Local Watershed Action Plans

The Puget Sound Water Quality Action Team, with advice from the Puget Sound Council, is mandated to implement and periodically update the Puget Sound Water Quality Management Plan. Implementation of the plan is guided by biennial work plans that coordinate all water quality programs within the Puget Sound basin.

The watershed planning program in Puget Sound was developed as a result of the Puget Sound Water Quality Act and the Puget Sound Water Quality Management Plan. Guidelines for the planning process are promulgated in WAC 400-12, and the plans are sometimes referred to as 400-12 plans. Ecology administers the local watershed program, with Puget Sound Water Quality Action Team oversight.

The act and Management Plan pertain to the 12 Puget Sound counties. However, several counties outside the Puget Sound area have successfully used the 400-12 approach to develop watershed plans. To date, there are over 35 Puget Sound watersheds with approved plans.

The purpose of these watershed action plans is to identify, correct, and prevent nonpoint source pollution, and protect beneficial uses of water. Later plans also deal with habitat restoration and protection. Ecology provides program oversight, technical assistance and grants to local entities to develop and implement watershed plans.

Local officials appoint community-based watershed management committees made up of county and city governments, conservation districts, tribes, businesses, individuals and special interest groups. Guided by WAC 400-12, the committees develop a watershed plan, based on the results of a characterization. Local watershed action plans include:

- a watershed characterization,
- problems, goals and objectives for each watershed,
- strategies for controlling and preventing nonpoint pollution and restoring habitat,
- strategies for carrying out the plan monitoring, financing, timelines, and accountability, and

opportunities for public involvement and participation.

The implementation strategy includes actions required by each implementing entity: a schedule, estimated costs and budget, a long-term financing element, a dispute resolution process, a strategy for coordination with ongoing programs, provisions for public involvement, and a method for evaluating the effectiveness of the plan. The committee seeks commitment from all parties responsible for plan actions. State and federal agencies provide both technical and financial assistance.

The watershed planning rule calls for adequate opportunities for public input throughout the watershed plan development. These opportunities include public meetings and hearings, watershed events and citizen workshops, and other means of soliciting public comment and participation. The plan is subject to the requirements of SEPA before approval, including the public participation requirements.

River Basin Characterization

Ecology has developed a fundamentally new approach to evaluating the role of water in river basins (WRIAs) in the Pacific Northwest. This new process was supported, in part, by the Departments of Transportation and Fish and Wildlife and designed to address the need for a basin level assessment tool to be used by state agencies and local communities to address salmon habitat, flooding, water use and water quality.

The characterization process seeks to better understand:

- Key basin processes,
- Human-caused changes to those processes,
- The extent of past changes,
- The effects of future change, and
- Where preservation and restoration of basin processes have the best chance of success.

The assessment carried out as part of the characterization is at a large scale and is meant to provide an overview and guidance to people attempting to address both sub-basin and site specific problems. It integrates watershed process calculations around the common theme that natural system processes create and maintain functions important to residents.

The outcomes of the characterization include:

- A picture of natural processes in the basin and a description of how they have been altered
- Sub-basins ranked by their potential for process alteration
- Identification of multiple process problems, and
- Recommendations for further activities.

The tool was developed in the Snohomish River Basin of western Washington. Local watershed groups are currently assessing how the information can be best put to use in

the basin. Further refinement is underway, and testing in other parts of the state is planned before the process is made available for broader application.

Water Quality Plan of Action

These plans are a product of Ecology's five-year, five-step watershed approach to water quality management. During the first year of the five-year cycle, Ecology staff work with local communities to develop a needs assessment for the management area. After some supporting studies and fieldwork, the Plan of Action is produced to address priority problems identified in the needs assessment. The Plan outlines long- and short-range needs and water quality strategies that Ecology and local entities will implement during the next five years, as resources allow. It includes point source activities such as permit writing and issuance. It also includes nonpoint source activities like TMDLs, providing technical assistance for implementation of BMPs or watershed plans, and participation on technical workgroups/issues. It identifies success measures and designs follow-up monitoring.

Lake Restoration Projects

Washington has maintained a viable lake restoration program since 1976. All projects are initiated at the grass roots level and a public entity must serve as the local sponsor and provide 25 percent of the project cost. State funding has been provided to projects sponsored by state agencies, tribal and local governments, municipalities, and county governments.

Lake restoration projects are conducted by a community-based interest group. A project begins with a physical, chemical, and biological characterization of the lake. Various lake restoration approaches are evaluated to determine which are most feasible for implementation. At the end of Phase I of a lake restoration project, the planning group recommends a restoration plan. The recommended strategy must result in meeting identified water quality goals. The lead agency must satisfactorily complete the SEPA process, including the public participation requirements. Public input is solicited in a public meeting on water quality goals and acceptable alternative strategies. Additional public meetings are held to solidify public acceptance of a selected restoration plan.

Phase II consists of implementation of the restoration plan. After construction or implementation activities are complete, a minimum of two years of post-restoration data are collected to evaluate the effectiveness of the chosen approach. In Phase II, the planning committee also develops a long-term watershed management plan to ensure that prevention and improvement efforts continue after a lake's restoration grants have finished.

Five years after implementation of the Phase II projects, lakes are eligible for Phase III post-restoration assessment funding. The purpose of these projects is to evaluate the effectiveness and longevity of the restoration efforts.

Shellfish Closure Response Plans

Washington State's Shellfish Restoration Program is a multi-agency protection effort guided by the Department of Health in cooperation with Ecology, tribal governments, local health departments, conservation districts, and watershed management committees. Shoreline surveys and water quality monitoring studies are routinely conducted in shellfish areas to select restoration project areas.

The Department of Health classifies and monitors commercial shellfish areas using standards and guidelines established by the Food and Drug Administration National Shellfish Sanitation Program. Whenever an area is reclassified (recertified or downgraded), the Department of Health prepares a sanitary survey report detailing the shoreline and water quality conditions that have resulted in the reclassification. The report includes the criteria that have been set as the water quality goal for the area.

When an area classification is downgraded, the Departments of Health, Ecology, and Puget Sound Action Team initiate a closure response process involving local governments, tribes, and other groups that can provide resources to solve the problem. A final **Closure Response Plan** includes the actions needed to identify the pollution sources, a schedule for implementing remedial actions, and the funding sources for these actions.

A shellfish area restoration project contains both public involvement and education elements. These elements are identified in the final closure response plan. They typically address on-site sewage system maintenance or problems associated with agricultural practices.

As part of a restoration project, Health conducts a monitoring program to track the results of the watershed remediation activities. Areas that have been successfully upgraded as a result of a restoration project are placed back on the commercial program monitoring schedule. In this program, water quality is monitored monthly for conditionally approved areas and bimonthly for restricted or approved areas.

Coordinated Water System Plans

Coordinated Water System Plans serve to integrate water utility development with land use planning. The plan normally consists of two parts: individual Water System Plans for each water system within a "critical water supply service area" and an Area-Wide Supplement which addresses water system concerns pertaining to the area as a whole.

Source Water Protection Plans are prepared by water purveyors to ensure that drinking water sources are protected from contaminants that could impact the safety of drinking water. Water systems are required to develop Watershed Control Programs for surface water sources or Wellhead Protection Programs for ground water sources. Source Water Protection Plans will help achieve drinking water quality objectives in basins identified as

impaired. These Plans are also part of the state's Source Water Assessment Program being developed in accordance with EPA requirements.

Conservation Plans document how purveyors intend to comply with the State's water conservation requirements. Conservation plans are developed to ensure efficient water use and adequate water rights for existing and future needs. They will be important vehicles for achieving water conservation objectives in those basins where ecological impairment criteria, such as declining fish stocks, are linked to insufficient in-stream flows.

Coordinated Water System Plans and Water System Plans are required to contain water demand forecasts and strategies for ensuring adequate water supplies to meet future needs. The strategies, developed to meet future needs of public water supplies, will have a direct impact on the quality of the aquatic resources in a given region.

Ground Water Management Plans

Ground water management plans are developed in areas experiencing water quantity and/or quality problems or where aquifers are determined to be of critical importance to the region (called ground water management areas, or GWMAs). A GWMA can be proposed by any county, city, town, or any other entity having its own incorporated government including public utility districts, health departments or districts, water districts, irrigation districts, sewer districts, conservation districts, or ground water user groups. Ecology is lead agency for the Ground Water Management Program.

After a GWMA is identified, a ground water advisory committee is formed to develop a ground water plan. The plan describes:

- the ground water management area
- the water allocation or water quality problems and objectives in the area
- actions needed to achieve the objectives, and the tasks, duties, roles and responsibilities of all parties responsible for implementing the action plan
- monitoring requirements

Interstate Ground Water Issues

Washington's most critical aquifers in terms of social and economic importance are shared by Oregon and Idaho (Columbia Aquifer System, the Spokane-Rathdrum Prairie Aquifer, and the Portland Basin). In order to protect and manage both the quality and quantity of these aquifers for current and future beneficial uses, a cooperative, comprehensive ground water protection plan should be developed and implemented between State, and tribal governments. Specific areas of the federal Comprehensive State Ground Water Protection Program (CSGWPP) can be expanded to include interstate concerns.

Intrastate Ground Water Issues

Ground water contamination is occurring in many areas of the state and is being addressed by a multitude of state, federal and local agencies. It is generally agreed that the most pressing ground water issue is the lack of a coordinated data collection and storage system. Numerous federal, State, local, and tribal governments collect ground water information on a regular basis, but have no way to share this information. This results in repetition, useless expenditures of limited funds, and decisions based on limited information.

Underground Injection Control (UIC)

Washington State currently classifies all of its ground water as a potential drinking water source, which is the highest beneficial use. Wells can become a path for contamination to enter ground water if they are not carefully sited, dug, maintained, and closed. The most common well is a water well. Another type is an injection well.

Injection wells are human-made or improved holes in the ground, deeper than they are wide. They are used to release or dispose of fluids underground. A fluid is any flowing matter, regardless of whether it is in a semisolid, liquid, sludge, or gaseous state. If an ejection well exists present, it must be registered with Ecology whether it is used or not. This is especially important if the well is located in a Wellhead Protection Area, Critical Recharge Area, or other sensitive ground water protection area.

Ecology has regulatory authority over the UIC program for Washington State. Registering an injection well is free, but requires completing a registration form which designates the location and use of the well, among other items. This information is entered into the statewide UIC inventory.

Federal Programs: Public Law 566 - Small Watershed Program

The Natural Resources Conservation Service has been using this program since 1978 in Washington to address water quality problems on agricultural lands. This program is based on a detailed watershed plan that identifies problems and proposes alternatives. Individual contracts lasting five to ten years are developed and implemented by individual landowners. Cost share or saving is provided to install conservation practices to solve problems identified in the plan. NRCS currently has seven active small watershed projects statewide.

Environmental Quality Incentive Program (EQIP)

This program came from the 1996 Farm Bill and is designed to improve resource conditions on agricultural lands by offering cost share and technical assistance to the landowners. This is a competitive program where 75 percent must be spent on problems

associated with livestock impacts and be based on a locally led process. Water quality problems are a major component of many funded proposals. NRCS typically receives \$2-4 million a year for cost sharing. This is a very popular program. In 1998 there were 674 applications, but fewer than half were funded. Project funding is targeted to geographic priority areas.

Conservation Reserve Program (CRP)

The Conservation Reserve Program reduces soil erosion by encouraging farmers to convert highly erodible cropland or other environmentally sensitive acreage to vegetable cover, such as tame or native grasses, wildlife plantings, trees, filter strips, or riparian buffers. Farmers receive an annual rental payment for the term of the multi-year contract. Cost sharing is provided to establish the vegetative cover practices.

Wetlands Reserve Program

The Wetlands Reserve Program is a voluntary program to restore wetlands. Participating landowners can establish conservation easements of either permanent or 30-year duration, or can enter into restoration cost-share agreements where no easement is involved. In exchange for establishing a permanent easement, the landowner receives payment up to the agricultural value of the land and 100 percent of the restoration costs for restoring wetlands.

Conservation Reserve Enhancement Program (CREP)

CREP, a new federal-state initiative, is designed to make streamside conservation measures a practical alternative for many farmers. The program improves upon the U.S. Department of Agriculture's longstanding Conservation Reserve Program by offering farmers increased incentives to voluntarily convert environmentally-sensitive cropland into riparian forest or vegetative buffers and wetlands. Areas targeted to receive CREP funding in Washington are generally associated with salmon recovery efforts.

CREP is a revolutionary new program using State and federal resources to help solve environmental problems. It combines an existing federal effort, the Conservation Reserve Program (CRP), with state programs to provide a framework for USDA to work in partnership with states and local interests to meet State-specific environmental objectives. The program provides for voluntary agreements with farmers to convert cropland to

native grasses, trees, and other vegetation, in return for rental payments and other incentives.

In Washington, the CREP program hopes to enroll farmers whose land totals 100,000 acres or 3-4,000 miles of riparian habitat on farmland next to salmon spawning streams. At least \$200 million will be available to help Washington farmers restore salmon habitat

and protect water quality over the next 15 years.

Habitat Conservation Plans

In Washington, Habitat Conservation Plans (HCPs), are administered primarily by National Marine Fisheries Service. Most of the HCPs are centered around the conservation of salmon and steelhead trout. These include programs administered under the Endangered Species Act, the Federal Power Act, the Clean Water Act, and the Magnuson-Stevens Act, among others.

The HCP program provides policy and technical expertise to non-Federal entities that want to develop HCPs. There are presently four completed HCPs that cover about 2 million acres in Washington State. Another dozen or so HCPs, ranging in size from 100 to 215,000 acres are under development. The size and complexity of HCPs varies and may cover small to large areas and include all private activities (e.g., logging, ranching, residential or commercial development).

The following map shows the extent of HCPs in Washington:

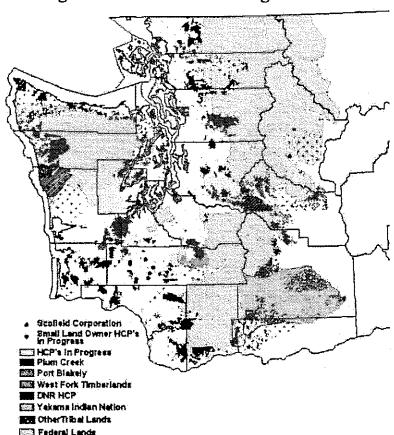


Figure 4.1 HCPs in Washington State

Source: National Marine Fisheries Service Web Site

US Forest Service

One of the US Forest Service goals is to ensure sustainable ecosystems. To meet this goal, the USFS has implemented several programs. One is the restoration of watersheds. This program includes decommissioning forest service roads and suspending road construction and reconstruction in many sensitive areas. Another program is land acquisition, through exchange or purchase. This program protects habitat, while allowing for more effective management of watersheds. One example of this program is the incorporation of approximately 200 acres of the Columbia River Gorge into the National Scenic Area.

US Geological Survey

The mission of the US Geological Survey is to provide reliable scientific information to describe and understand the earth, minimize loss of life and property from natural disasters, manage water, biological, energy and mineral resources, and to enhance and protect our quality of life. One program that promotes the USGS's mission in Washington State is the National Water-Quality Assessment (NAWQA) Program. The goals for the NAWQA study are to summarize the status and trends of the surface and ground water quality in the study area, to describe the processes affecting water quality and the aquatic ecology, and to get the results in the hands of managers, policy makers, and the public in the most usable and timely manner possible.

The study area includes 13,100 square miles between the Columbia and Snake Rivers including all of the Crab Creek and Palouse River drainages. Water quality issues include the study of nitrates in ground water; pesticides and other organic contaminants in ground water; erosion and sedimentation, particularly in the Palouse drainage basin; nutrient and pesticide concentrations in streams affecting aquatic biota; and the loss of stream habitat.

U. S. Fish & Wildlife Service

In 1994, the US Fish & Wildlife Service adopted the "Ecosystem Approach to Fish and Wildlife Conservation," recognizing the need to treat the landscape as a community, a whole much greater than the sum of the parts. The ecosystem approach achieves landscape-level conservation of fish, wildlife, plants and their habitats through cross program coordination with the USFS and partnerships with organization and individuals outside the USFS.

Other

There are numerous other programs that we did not mention. This section was meant to highlight a few - not all. We will edit this section in future revisions.

Chapter 5

Analysis of Current Management Measures

This chapter describes the management measures to control nonpoint source pollution from the six major source categories identified by the National Oceanic and Atmospheric Administration (NOAA), with guidance developed by EPA, in consultation with other Federal agencies. NOAA's and EPA's findings on Washington's programs to control pollutants from these categories are also described. The end of each section lists a set of additional recommendations that will be implemented within five, ten, or 15-year timeframes.

Primary Contributors to Nonpoint Source Pollution

Section 305(b) of the CWA requires states to identify "sources" of pollution in addition to "causes." Water quality data is correlated back to primary land use activities by Ecology staff. The results of this analysis statewide are shown below for streams, lakes and estuaries.

Figure 5.1 Possible Sources of Pollution

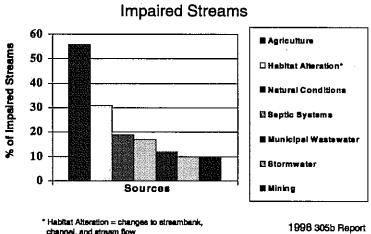
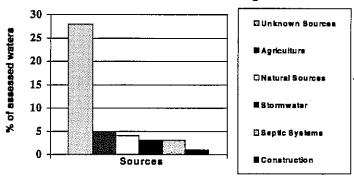


Figure 5.2 Possible Sources of Pollution

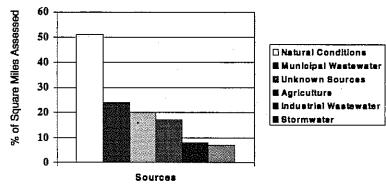




1998 305b Report

Figure 5.3 Possible Sources of Pollution

All Estuaries Assessed in Washington



1998 305b Report

MAJOR CATEGORIES OF MANAGEMENT MEASURES

The six source categories used in this analysis are:

Category	Page Number
Agriculture	70
Forestry	112
Urban	148
Recreation (especially marinas and boats)	204
Hydromodification	234
Loss of Aquatic Ecosystems	257

Within each category the management measures required by CZARA are identified, and a complete text of the findings for each management measure provided by EPA and NOAA are described. The findings resulted from a review of <u>Washington's Nonpoint Strategy: CZARA 6217, September 1995/Revised June, 1996</u>. The combination of the management measures and the findings forms the basis for many of the recommendations in the strategy. Additional management measures have been added where the needs have been identified. A section on Education and Building Stewardship is found on page 273.

HOW MANAGEMENT MEASURES WILL BE USED

The State used the management measure to analyze it's nonpoint program required under section 6217 of the Coastal Zone Act Reauthorization Amendments of 1990 (CZARA). They were used as a tool to determine gaps, deficiencies, and additional needs. The state will continue to use existing programs and through the management measure analysis process, will analyze whether additional needs are necessary, or the state has sufficient programs to meet the requirements of the management measures. NOAA and EPA will determine whether the state's analysis meets federal requirements. The management measures will be incorporated into existing and future water quality programs. They will not be implemented as a program in and of themselves.

A previous analysis was done in the early 1990's, resulting in the submission of a nonpoint plan for Washington's coastal zone in 1995, and again in 1996. The 1996 submission received a conditional approval from the federal agencies on June 30, 1998. The information in this analysis uses the previous plan, the findings of the federal agencies, and newer information gathered during 1998-99, in consultation with other State, tribal and federal agencies.

GUIDE TO ANALYSIS OF PROGRAMS BY MANAGEMENT MEASURE

The analysis of each Management Measure follows this standard format:

Management Measure: The title and number of the management measure as found in the guidance from EPA and NOAA issued in 1992 as required in CZARA 6217(g). In the Federal Register, this document is referred to as the (g) guidance.

<u>Description from Federal Guidance</u>: This is also taken directly from the (g) guidance, and provides the specific details of each management measure.

1998 Finding from EPA and NOAA: Feedback from EPA and NOAA after their initial review of Washington's nonpoint source programs relative to the requirements of CZARA 6217 and the (g) guidance. The text, shown in italics and quotes, has been excerpted from the letter of conditional approval from EPA and NOAA dated June 30, 1998.

Existing Laws and Regulations: A list of current State laws relevant to the implementation of the management measure. Regulations that have been adopted from these laws are listed with the law of origin.

<u>Description of Current Programs in Washington</u>: A summary of how the laws and regulations work to implement the management measure. The description may include specific citations from the Revised Code of Washington and/or the Washington Administrative Code. This section also describes non-regulatory programs important to the success of the State's nonpoint effort.

Additional needs to meet this management measure: A summary of comments from the public, State agencies, and the federal agencies, as well as Ecology's own analysis of conditions where the current State program is unsuccessful at fully implementing the management measure and/or protecting water quality in the State.

Actions to satisfy this management measure: A list of actions to satisfy the components of the management measure. These actions are also listed in the table in Chapter 9.

Additional actions to improve water quality: A list of actions identified by the state important to improving water quality, but not needed to satisfy the implementation of the management measure. These actions are also listed in the table in Chapter 9.

AGRICULTURE

BACKGROUND

Agricultural activities in Washington are a significant contributor to the economy. They represent about 20 percent of the gross State product at the retail level. Over 250 different crops are grown in the State. Some crops, like spearmint, represent most of the national and, in a few cases, international market. The figures below show the importance of agricultural activities in Washington.

Number of farms

15,465

Total Acres

15,179,710

Value of Products

\$4,767,727,000

Agricultural land base

35.6 percent (percent of total land)

(1997 Census of Agriculture, National Agricultural Statistics Service, USDA)

For the purposes of this document, agriculture is defined as the growing of crops or the keeping of livestock for commercial sale and/or personal benefit. Agriculture in Washington State is a diverse industry that encompasses everything from very large commercial livestock operations to very small part-time crop or livestock producers. Markets include industrial distribution systems and systems that market farm products through local cooperatives, farmers markets, or private contacts.

There are numerous programs that work with the agricultural community. By far the biggest assistance programs for agriculture are offered through local conservation districts and provided by the combined resources of the districts, Natural Resources Conservation Service, Farm Services Agency, and WSU Cooperative Extension. The State Department of Agriculture supports agricultural commodities and regulates certain agricultural practices. The Department of Ecology supports implementation of agricultural BMPs, to reduce the pollutant stream that runs off agricultural lands and provides enforcement support.

Large commercial livestock operations in Washington include dairy herds, herds of replacement dairy heifers, poultry raised for eggs and meat, and cow/calf operations raising beef cattle for slaughter locally or shipment to feedlots. However, most large concentrated animal feeding operations (CAFOs) are considered point sources of pollution and are regulated under the NPDES program.

Numerous smaller operations also qualify as "commercial" in nature. In addition to smaller versions of the types of operations listed above, horse breeding and the raising of pigs, sheep, dairy goats, geese/ducks, rabbits, and exotic animals such as llamas, emus and ostriches occur within the state. Livestock grown strictly for personal use comprise a significant portion of the total livestock numbers the state.

Plant-based agriculture in Washington includes cut flowers, bulbs, vegetables, fruits, nursery stock, berries, cranberries, orchards, vineyards, pasture grass for forage, and corn or other crops for silage, hay, and grains.

NONPOINT POLLUTION ASSOCIATED WITH AGRICULTURE

A report that Ecology prepared for EPA characterizing water quality conditions and sources in Washington found that 55 percent of impaired streams were degraded by agricultural activities. Most of the degradation was associated with fecal coliform contamination, high temperature, and excessive nutrients (305b report, 1998.)

The most common sources of surface water pollution from agricultural activities in Washington State are livestock manure, sediment, and loss of trees in riparian areas that results in increased surface water temperature. Overgrazed pastures, animal confinement areas, and eroding stream banks on cultivated or grazed lands contribute to the problem. In addition to impacts on surface waters, ground water has been polluted from manure applied to fields, application of commercial fertilizers, and pesticides and fungicides.

The effects of soil erosion on water quality are loss of in-stream habitat, increased temperature, and sedimentation. Ambient monitoring clearly shows that impairment to water quality exists in Washington's dry-land agricultural areas, particularly where soils are highly erodible as in the Palouse region. Sheet and rill erosion caused by rain and snowmelt affects 4.3 million acres (69 percent) of non-irrigated cropland statewide. Considerable soils are lost each year, with erosion rates in some locales exceeding 40 tons per acre per year (USDA, 1984). In most of western Washington, soil losses and associated water pollution by non-irrigated agriculture are much less pronounced, although some localized problems exist.

Irrigated agriculture effects on surface water quality in Washington are clearly documented in both the Columbia and Yakima basins, the State's two major irrigation regions. Of the 1.8 million acres of irrigated land in Washington, 575,000 acres are located in the Columbia Basin and 520,000 in the Yakima Basin (USDA, 1984). The remaining 700,000 acres are scattered throughout the State.

Soil loss caused by the application of irrigation water is estimated to be about 11.5 million tons annually (USDA, 1984). Sediments degrade fish habitat and decrease water clarity. Irrigation return flows draining agricultural areas carry pesticides and fertilizers to rivers and streams. Irrigation also increases the potential for leachable materials such as pesticides and fertilizers to reach ground water.

The major categories of animal feeding operations in Washington include beef cattle (290,000 mature animals), dairy cattle (260,000 mature animals), hogs and pigs (39,000 mature animals) sheep and lambs (62,000 animals) and poultry operations (animal numbers not available). Effects on surface and ground water quality from improperly managed manure and wastewater include high levels of fecal contamination, increased nutrient loads, and sedimentation. These are caused by confinement area runoff and

infiltration, improper manure spreading, excess surface runoff from overgrazed pastures, trampling of streamside vegetation, and direct access to streams by animals.

Grazing and rangeland management activities create a significant potential for water pollution, particularly in eastern Washington. According to the <u>Washington State</u>

<u>Grazing Land Assessment</u>, a joint study by the Washington Rangeland Committee and the Conservation Commission, about one-third of the state, including both rangeland and associated agricultural and forested land, is grazed by livestock. Rangeland covers about 7 million acres, with an additional 5.5 million acres in grazable woodland. Since the riparian zone is attractive to animals for its lush vegetation for forage and water source, the primary effect of grazing on water quality is largely due to degradation of the stream corridor.

Dairy farms are the only category of animal feeding operation currently required to develop and implement nutrient management plans to prevent and correct water pollution problems. The 1998 Dairy Nutrient Management Act (Chapter 90.64 RCW) requires nutrient management plans be developed and fully implemented by December 31, 2003. Water pollution issues at other categories of animal feeding operations have been and will continue to be addressed through complaints and the Total Maximum Daily Load requirements in the federal Clean Water Act.

Beneficial uses are threatened or impaired in many areas of the state due to these diffuse agricultural sources of pollution. The 1989 assessment of nonpoint sources of pollution (319 Plan) determined that agriculture (and particularly animal keeping) has a greater impact on rivers than any other major source of nonpoint source pollution. Nearly half the river miles assessed in the report suffered impacts associated with farm animals, such as runoff from pastures and holding areas, and destruction of riparian vegetation.

SOURCE CONTROL STRATEGY

Washington's nonpoint source pollution control efforts in agriculture focus primarily on the voluntary actions of growers and producers linked with assistance and incentives from government. Enforcement usually targets producers who do not cooperate with local efforts to improve water quality.

Education and Technical Assistance. Implementing this program requires an extensive working relationship with growers and producers which is shared by local conservation districts, the State Department of Agriculture, Washington State University Cooperative Extension (CE), the State Conservation Commission, and the US Department of Agriculture through its Farm Services Agency and Natural Resources Conservation Service. The key points of this approach are summarized below.

The first step in this approach is direct education and technical assistance to growers. CE and local conservation districts provide this service. The water quality program at CE is educating growers on BMPs. In its 1998 Performance Plan, CE committed to several

educational goals. Some of these goals, along with achievements for 1998, are summarized in table 5.1.

Table 5.1

Education Targets for Agricultural BMPs

Washington State University Cooperative Extension

BMP Category	Units	1998 goal	1998 actual	Annual goal: 1999 – 2001
Animal waste	Farmers/ranchers	800	1340	1200
Nutrients	completing	897	2460	2000
Pesticides	educational	781	1333	1200
Irrigation	programs	715	1750	1200
ther water quality		3135	1634	1600
Animal waste	Total number of	33,000	48,750	40,000
Nutrients	acres on which	40,000	61,190	50,000
Pesticides	BMPs have been	33,000	73,110	60,000
Irrigation	applied on an	33,000	362,600	350,000
Other water	annual basis	30,800	35,630	35,000
quality				

CDs play a significant role in educating and technically assisting large and small landowners. For example, in the 1999 Biennium Water Quality Appropriation Report, districts reported 18,309 contacts with persons receiving information at meetings or some type of group session, and 3,351 who received direct one-on-one technical assistance. Conservation districts will be reporting BMP implementation through their efforts to the Conservation Commission.

CE also offers Farm*A*Syst, a nationwide educational program designed to improve ground water quality on farms and protect drinking water supplies. Farm*A*Syst helps farmers to prepare and implement individual farm plans in an effort to improve management of pesticides and fertilizers. A similar effort called HOME*A*SYST is offered by CE to urban homeowners.

Education plays an increasingly important role as a strategy to control agricultural sources of pollution. Cooperative Extension, CDs, NRCS, and Ecology all have prominent educational programs. One particularly successful program is Ecology's Padilla Bay National Estuarine Research Reserve.

The Padilla Bay Reserve has a demonstration farm that provides a practical laboratory where agricultural BMPs can be investigated, demonstrated, and transferred to other agricultural producers. Using a collaborative management structure, the farm is operated through advisory groups led principally by Skagit Valley farmers, Skagit Conservation District, Washington State University, and Padilla Bay staff.

Technical assistance is critical to water quality improvement in Washington's agricultural areas. NRCS focuses on the development of comprehensive farm plans. These plans promote integrated approaches including but not limited to conservation buffers, conservation tillage, nutrient management, and pest and disease management. NRCS employs a combination of standards described in the FOTG to assemble a plan that meets the overall needs of the farmer tailored to the farm site.

<u>Incentives</u>. Financial incentives are provided through various agencies. The current priority is the implementation of the Conservation Reserve Enhancement Program. The \$250 million in this program will be used to restore between 3,000 and 4,000 miles of riparian habitat in agricultural areas over the next 15 years.

NRCS also provides cost-share and land leases for conservation through:

- Environmental Quality Incentives Program (EQIP)
- Conservation Reserve Enhancement Program (CREP)
- Wildlife Habitat Incentive Program (WHIP)
- Wetlands Reserve Program (WRP)

State funds are available to implement BMPs through grants from the Conservation Commission and Ecology's Water Quality program. Low-interest loans are also available to commodity groups and local governments from Ecology's State Revolving Fund.

Washington departments of Agriculture and Health also enforce laws and regulations related to nonpoint source pollution from agricultural sources. Agriculture regulates the use of registered pesticides and applicators of those pesticides. Health regulates human exposure to pesticides.

Enforcement

Agricultural Compliance Memorandum of Agreement. In 1988 the Department of Ecology, Washington Conservation Commission, and 47 of the state's 48 conservation districts entered into the Agricultural Compliance Agreement (MOA) The purpose for the MOA is to:

- Recognize the working relationship between these agencies in protecting water quality of the state;
- Coordinate the functions of these agencies; and
- Carry out a program of agricultural water quality protection and management.

The Agreement is largely complaint driven. If a complaint is received and verified by Ecology, the landowner is initially provided an opportunity for voluntary compliance. The landowner is given up to 6 months for development of a conservation plan and up to eighteen months to implement the plan. Technical assistance is provided to the landowner through their local conservation district. The conservation plans must meet applicable US Natural Resource Conservation Service standards and specifications.

The Agreement provides that if a landowner does not cooperate, Ecology will take enforcement action to prompt compliance. The agreement also provides that Ecology will require immediate corrective action if conditions posing a significant threat to the environment are identified.

The Agreement defines a consistent series of steps to help coordinate Ecology's water pollution control responsibilities with conservation district programs that provide technical assistance to landowners. Through its local conservation district office, a small farm owner may receive technical assistance to help develop and implement a water quality management plan or "Farm Plan". Farm Plans identify reasonable and economical ways to manage the farm to prevent or correct a water pollution problem.

It should be noted that dairy farm water quality issues are handled under the 1998 Dairy Waste Management Act. Under this act, farms that cause pollution are required to develop and implement animal waste management plans and obtain coverage under the statewide Dairy Waste General Discharge Permit.

The following series of steps are followed if Ecology receives a water quality complaint involving a farm:

- 1. Regional water quality staff will contact the operator and visit the site to see if the complaint is valid. If a water pollution problem does not exist, the complaint is dismissed.
- 2. If a pollution problem is verified by Ecology, the farm will be referred to its local conservation district for assistance. The agreement provides that Ecology will require severe pollution problems be corrected immediately if a potential threat to public health exists.
- 3. Normally, however, once a farm is referred to their conservation district, it has six (6) months to develop a Farm Plan with assistance from the conservation district. The plan will include best management practices (BMPs) to correct the identified water quality problems.
- 4. Then, the farm has an additional 18 months to implement the plan. The conservation district will continue to provide assistance.
- 5. If the farm owner chooses not to cooperate by voluntarily correcting the problem, the Agreement specifies that Ecology will take enforcement action if necessary to solve the water quality problem.

Over the last seven years, Ecology has been involved in numerous complaint resposnes and referrals to conservation districts. This partnership has resulted in good water quality improvement. In the vast majority of cases, farmers have worked cooperatively with district personnel to address the problems. In the few cases where the farmer is not

willing to work cooperatively or has failed to implement their farm plan, Ecology has stepped in and issued administrative orders and in several cases penalties for noncompliance and water quality violations.

Managing Dairy Waste. Since adoption of 208 Plans under the federal Clean Water Act in the 1970's, dairy farms have been the priority category of animal feeding operation in Washington needing to improve animal waste management practices to achieve federal and state water quality goals. Dairy farms continue to be the priority category of animal feeding operation being addressed by Ecology.

In 1998 the Washington state legislature enacted significant changes to the State Dairy Nutrient Management Act (Chapter 90.64 RCW). Ecology received additional funding to increase the number of dairy field inspectors from 3.5 FTE's to 7.5 FTE's. Two additional positions help implement this 1998 Act, including a statewide Program Coordinator and Dairy Database Administrator.

The major requirements of the new 1998 Dairy Nutrient Management Act are:

- By September 1, 1998, and by that date every even-numbered year thereafter, Ecology must register all commercial dairy farms to provide baseline information on the industry. To date, 99% of the states dairies have registered.
- Ecology must inspect all of the state's 755 commercial dairy farms at least once between October 1, 1998, and October 1, 2000. As of July 1, 1999, 57 percent of the states dairy farms were inspected. After October 1, 2000, inspections will be conducted by Ecology as necessary to maintain compliance.
- Since beginning the inspection program, actual or potential water quality problems
 have been found at 20-35 percent of the dairy farms. These dairy farms receive an
 informal or formal enforcement response from Ecology or are required to obtain
 NPDES permit coverage to address water quality issues. Approximately \$307,000 in
 civil penalties were issued to dairy farms during the period October 1, 1998 through
 July 1, 1999.
- Washington Conservation Commission must develop minimum elements for nutrient management planning based upon U.S. NRCS technical standards for nutrient management plans required under the Act. The Commission adopted these minimum elements in December, 1998.
- All dairy farms must develop an approved nutrient (waste) management plan by July 1, 2002, and fully implement the plan by December 31, 2003. These plans must meet the minimum elements adopted by the Conservation Commission and be approved by the local conservation district.
- Federal Clean Water Act regulations requiring an NPDES waste discharge permit for dairy farms meeting the definition of a Concentrated Animal Feeding Operation are

affirmed.

- Ecology must establish a broad-based Dairy Advisory and Oversight Committee to oversee be accountable for implementation of the 1998 Act. The Committee has been formed and has met seven times since May 1998.
- Ecology must establish a database to track the inspection and registration programs, enforcement actions and industry compliance. This has been accomplished and detailed industry and individual dairy farm data are available.
- This legislation relies upon the technical assistance capabilities of conservation districts for developing and implementing required nutrient management plans.

Addressing Other Animal Waste Issues. The major types of other animal feeding operations in Washington include beef cattle and poultry operations. Several large (greater than 1,000 animal units) beef cattle operations are currently under NPDES permit coverage. The protection of both surface water and ground water protection is achieved by incorporating state ground water authority under the State Water Pollution Control Act to these permits.

Beef cattle and poultry operations are inspected primarily in response to complaints or as part of implementing TMDL's for 303(d) listed waterbodies. NPDES permits will be issued when inspections reveal permit coverage is needed or when permit applications are voluntarily submitted. This approach appears to be an adequate and appropriate method at this time to address these operations.

It should be noted this is the Phase One AFO/CAFO Implementation Plan for the State of Washington. Ecology will be assessing the number, size and location the major categories of animal feeding operations and any associated water pollution problems. Based upon this information, this Implementation Plan may be updated as necessary to more thoroughly address these animal feeding operations.

Grazing standards on State lands. In 1994 Legislature directed the Washington Department of Fish and Wildlife (WDFW) to develop standards for managing, preserving, and protecting the ecosystem on state-owned agricultural lands, rangelands, or grazeable woodlands. These standards are known as House Bill (HB) 1309 Ecosystem Standards for State-Owned Agricultural and Grazing Land. The mandatory ecosystem standards are required for all State lands utilized for agricultural and grazing activities. In order to comply with this bill, state agencies, began to incorporate new policy. For instance, DNR has integrated a Resource Management Plan (RMP) in all new agricultural leases and lease revision. An RMP is designed specifically for each lease and site condition in which it assesses the condition of the resource and targets the desirable ecological conditions.

As a result of RMPs, some valuable changes to land use patterns, primarily the minimization of land use activities, that contribute to the deterioration of ecosystem

health and the loss of fish and wildlife habitat on more than one million acres of DNR's agricultural lands alone. Currently, these standards as well as the Natural Resource Conservation Service (NRCS) and the Field Office Technical Guides (FOTGs) are being discussed for use on private lands. These ideas are under discussion by industry.

1998 GENERAL FINDING FROM EPA AND NOAA

FINDING: Washington's program does not include management measures in conformity with the 6217(g) guidance. The State has identified a back-up enforceable authority but has not yet demonstrated the ability of the authority to ensure implementation of the agriculture management measures throughout the 6217 management area.

CONDITION: Within two years, Washington will include in its program agriculture management measures in conformity with the 6217(g) guidance. Within one year, Washington will develop a strategy (in accordance with Section XIII, page 14) to implement the agricultural management measures throughout the 6217 management area.

RATIONALE: The Washington program submission presents summarized versions of the 6217(g) management measures in tables and relates them to its enforceable policies and implementation strategy. However, the State does not explicitly state that it intends to implement the management measures within the 6217 management area. In addition, Washington's program does not include management practices or a process to identify practices to implement the listed management measures.

The State has identified the Water Pollution Control Act (Ch. 90.48 RCW); Water Quality Standards for Surface Waters (Ch. 173-201A WAC); and, Ground Water Quality Standards (Ch. 173-200 WAC) as backup enforceable policies and mechanisms, but has not described how these authorities will be used to ensure implementation of the management measures where voluntary efforts are unsuccessful. For example, the Agriculture Compliance Memorandum of Agreement (MOA) among the Department of Ecology, the State Conservation Commission, and individual Conservation Districts provides a mechanism that could be used to implement the agricultural management measures. The Agriculture MOA and the Guidance for Implementation of the Agricultural MOA are based largely on a voluntary approach in which a landowner is first given the opportunity to voluntarily develop and implement a conservation plan. If a landowner does not cooperate, and a citizen complains of violations, enforcement action is possible. However, there is not a clear path which links steps to actively encourage voluntary compliance with (g) management measures; to follow up where monitoring determines compliance is not occurring; and to undertake additional specific steps, including enforcement where necessary, to achieve implementation of the management measures.

The Pesticide Applicators Act (Ch. 17.21 RCW) regulates the applicators of restricted use pesticides. However, it does not address non-restricted use pesticides. The Dairy

Waste Management Act (Ch. 90.64 RCW), through the NPDES Dairy Waste General Discharge Permit, requires dairies designated as concentrated animal facilities (CAFOs), generally those with greater than 700 head, to develop and implement an animal waste management plan. Smaller dairies can be designated a CAFO upon determining that they are a significant contributor of pollution. However, dairies with less than 700 head and other confined animal facilities as defined in the (g) guidance are not addressed.

Washington also has several voluntary programs that could be used to promote implementation of the management measures for certain parts of Washington's coastal area. The Puget Sound Water Quality Management Plan requires activities identified in Watershed Action Plans to be consistent, as appropriate, with the 6217(g) management measures. Conservation Districts, Washington State University Cooperative Extension, and NRCS provide technical assistance and training to support implementation of BMPs. Financial assistance to address agricultural sources of water pollution is provided under the Centennial Clean Water Fund and the State Revolving Fund. However, the extent of voluntary implementation of these management measures under these programs is unclear.

RESPONSE TO FLEXIBILITY GUIDANCE FROM NOAA AND EPA

To meet the requirements of Section 6217, states must show that they have programs in place that meet the management measures and have enforceable back-up mechanisms. In the case of agriculture in Washington, the state relies heavily on the voluntary programs focused on development and implementation of comprehensive farm plans. The only exceptions are dairies which require implementation under the 1998 Dairy Nutrient Management Act (Chapter 90.64 RCW), and pesticide applications that are regulated under the Pesticide Control Act (Chapter 15.58 RCW)

Washington proposes to address all agricultural activities (except dairy management and pesticide application) based on the Flexibility Guidance, issued by NOAA and EPA in October, 1998. It contains a section called <u>Enforceable Policies and Mechanisms</u>. This section allows the two agencies to "approve program elements for which states have proposed voluntary or incentive-based programs backed by existing state enforcement authorities, if the following is provided:

 A legal opinion from the attorney general ... that such authorities can be used to prevent nonpoint pollution and require management measure implementation, as necessary;

<u>Washington State response</u>: In a letter dated September 16, 1988, from the Assistant Attorney General Charles Lean determined that Department of Ecology had the legal authority to carry the requirements of the new CWA 319 Program. In his review, Mr. Lean discussed the rule making and enforcement capabilities of the Department and found that adequate authorities existed to implement a broad spectrum pollution

control program that included provisions for the management of nonpoint source pollution.

The following language has been excerpted from the letter. Areas that are pertinent to the above discussion of authorities have been bolded.

"RCW 90.48.260 was amended by the 1988 Legislature to expressly reference the Clean Water Act amendments contained in the Water Quality Act of 1987 (P.L. 100-4), which are dated February 4, 1987. WASH. SESS. LAWS 1988, Ch. 220. The authority granted the Department of Ecology by RCW 90.48.260 thus includes the authority to "take all action necessary" to meet the requirements of Section 319 of the Clean Water Act. Similar authority existed to implement pre-existing sections of the Clean Water Act, including, among others, Section 208. The 208 planning documents identified within the Nonpoint Source Pollution Management Plan (including the Washington State Urban Storm Water Management Plan, the Dairy Waste Water Quality Management Plan, the Irrigated Agriculture Water Quality Management Plan, and the Dryland Agriculture Water Quality Management Plan), were all prepared pursuant to legislative authorization. Complete authority also exists to adopt any future "208" program elements necessary to implement nonpoint source pollution controls.

The Department of Ecology has authority to adopt rules "necessary and appropriated to carry out all of its authority." RCW 43.21A.080. It specifically has broad rulemaking authority relating to water quality (RCW 90.48.035), as well as authority to jointly promulgate (with the Forest Practices Board) forest practice regulations relating to water quality. RCW 90.48.420. To the extent that the Timber, Fish and Wildlife Agreement results in the promulgation of regulations affecting water quality, these regulations will be promulgated by the Department of Ecology and subject to enforcement by that agency.

State waste discharge permits are required of any person who conducts a commercial or industrial operation of any type which results in the disposal of solid or liquid waste material into waters of the state . RCW 90.48.160. State discharge permits may be required for some discharges not covered by the NPDES program, such as certain agricultural discharges and discharges affecting ground water.

RCW 90.48.110 requires that the Department of Ecology approve plans for the construction of "sewerage systems, [and] sewage treatment or disposal plants or systems." Regulations implementing this provision (chapter 173-240 WAC) are broad, and require approval of all waste treatment systems, including those treating industrial and agricultural wastes. This gives the Department of Ecology additional regulatory authority over systems which do not result in point source discharges.

To enforce these provisions, the Department of Ecology may issue administrative orders to any person who "shall violate or creates a substantial potential to violate" water quality laws. RCW 90.48.120. Civil penalties of up to \$10,000 per day may be levied against those violating the statutes, and regulations, permits or orders issued pursuant thereto. RCW 90.48.144. Civil and criminal judicial enforcement is also available. RCW 90.48.037 and .140"

<u>Conclusion</u>: The State of Washington concludes that adequate authorities exist to implement these management measures. The department has exercised this authority in a wide range of cases involving agricultural activities over the last 11 years since Mr. Lean's legal opinion was written. See Chapter 3 for a listing of enforcement actions by source category.

2) A description of voluntary or incentive-based programs, including the methods of tracking and evaluating the programs, the states will use to encourage implementation of management measures;

<u>Washington State response</u>: Voluntary and incentive-based programs are described in detail in the management measure discussion that follows. For some of the management measures there is a direct link to performance measures listed in Chapter 12. These performance measures will be reviewed annually to determine the level of implementation and activity associated with the program.

- Number of dairies inspected
- Number of dairy nutrient management plans approved; fully implemented
- Miles of riparian habitat on agricultural lands that is protected, restored, or preserved.
- Number of field office technical guides for riparian protection updated
- Quantity of water saved and retained in-stream from irrigation water conservation.
- Number of pesticide collection events
- Number of farm plans completed statewide
- Total acres under contract through CRP and CREP

In addition, the implementing agencies will be reviewing the elements of the program each year looking for ways to continue to improve and fine-tune the actions taken. There will be an emphasis on identifying needs, especially financial, that must be met for successful program implementation.

<u>Conclusion</u>: The State of Washington concludes that adequate voluntary or incentive-based programs exist to implement the CAFO/AFO and nutrient management measures. Application of agricultural pesticides is addressed under a regulatory program in Washington. Performance measures and annual program provide the appropriate mechanism to determine program progress and effectiveness.

3) A description of the mechanism or process that links the implementing agency with the enforcement agency and a commitment to use the existing enforcement authorities where necessary.

<u>Washington State response</u>: The primary implementing agencies for agricultural programs are the local conservation districts (with the assistance of Cooperative Extension, NRCS and FSA). The Agricultural MOA (see description above) establishes a mechanism for coordination and tracking of agricultural water quality enforcement actions. Under the MOA, the Conservation Commission maintains a detailed accounting of all of Ecology's <u>non-dairy</u> complaint referrals to conservation districts. A report is prepared each year summarizing the actions taken and the outcomes. The Commission has a Web site and web based forms to speed the entry of information from districts.

The dairy program is tracked using a different database maintained by Ecology. All actions pertaining to the implementation of the Dairy Nutrient Management Act are tracked including inspections, permits, enforcement actions, penalties, and farm plan approvals.

Department of Agriculture manages pesticide licensing and certifications, and a listing of pesticides approved for use in Washington. They also track incidents that have public health implications.

Ecology has already shown its willingness to exercise its enforcement authorities in the discussion found in Chapter 3.

<u>Conclusion</u>: Washington has mechanisms in place that link implementing agencies with the enforcement agencies and has shown a commitment to use the existing enforcement authorities where necessary.

EFFORTS TO IMPROVE AGRICULTURAL PROGRAMS IN WASHINGTON

Agricultural practices can generally be divided into practices of an agricultural nature and those specifically designed to address fish and water quality problems. Significant efforts are currently beginning which focus on improving water quality and fish habitat in agricultural areas.

Based on the analysis of agricultural programs in Washington, many needs were identified. Some could be tied back to meeting the 6217 management measures, while others were more general in nature. The following general needs have been identified:

- Most conservation districts lack a stable and local source of funding to support basic water quality activities.
- Agencies providing technical assistance to growers need to coordinate development of BMPs and use one set of standards.
- Improved BMPs are needed in many sectors of agriculture. Particular focus is needed in the areas of riparian management and irrigation systems.

• Implementation of agricultural programs needs improvements across the state. Significant increases to funding are needed to provide planning assistance, cost share and loans.

The review process of the agricultural programs in the state was evaluated using criteria developed by EPA and NOAA called the 6217 (g) Guidance. The following seven management measures are part of that evaluation:

- 1. Erosion and sediment control
- 2. Large animal facilities operations*
- 3. Small animal facilities operations*
- 4. Nutrient management*
- 5. Pesticide management*
- 6. Grazing management
- 7. Irrigation water management

Washington has reviewed the seven agricultural management measures and determined that programs with a "*" meet the requirements for those management measures. Future agricultural program development will focus on improving programs for:

- Erosion and sediment control
- Grazing management, and
- Irrigation water management

The programs and actions listed below will be used to update these programs.

Salmon Recovery Plan - Early Actions

The primary focus of agricultural efforts is shifting toward implementing the state's salmon recovery plan. It contains the following commitment:

"The farm plan will be the mechanism used to address the quality of water and habitat. Conservation Districts and the Natural Resource Conservation Service will work with growers and producers to develop farm plans that recommend a set of conservation practices addressing water quality and habitat needs. Federal and state programs will be used to provide technical assistance and cost-share money to help the farmer implement the practices. The program will use conservation practices from the Natural Resources Conservation Service updated Field Office Technical Guide." Extinction is Not an Option, Vol 1, pg III.16

The intent behind the State's salmon recovery plan is to provide a higher level of support to the agricultural community in hopes that more regulatory actions will not become necessary. The plan does call for legislation to mandate farm plans for all farm lands, if non-regulatory actions fail to achieve the plan's goals and objectives. Under the plan, all agricultural BMPs will be evaluated to determine if they meet requirements of the Clean

Water Act and the Endangered Species Act. Those BMPs that do not meet standards will be upgraded.

The following "early" actions are commitments for the FY1999-2001 time period from the Joint Natural Resources Cabinet. They constitute the first two years of salmon recovery implementation activities submitted to NMFS. In addition, these actions provide important commitments to improving water quality and cleaning up agricultural nonpoint source pollution.

- Develop Statewide Irrigated Agriculture Comprehensive Plan to facilitate development of irrigation district plans.
- Update Field Office Technical Guide (FOTGs) for use by NRCS and CDs.
- Refine and update state restrictions on pesticide applications and provide technical
 assistance on proper use of pesticides to ensure compliance with the Endangered
 Species and Clean Water Acts, in both rural and urban areas.
- Implement Conservation Reserve Enhancement Program.

Agriculture Fish and Water (AFW)

A negotiation process to address water quality and endangered salmon has just begun to evaluate possible changes to the state's agricultural program. The primary focus will likely be on addressing riparian protection and irrigation issues. The process has been dubbed Agriculture Fish and Water (AFW) and it will follow a model similar to the historic Timber Fish and Wildlife process. The initial meetings were just completed at the time of this writing. Participants include state and federal agencies, representatives of agricultural producer groups, local governments, environmental groups and one tribe.

The AFW process is designed to address the technical issues identified in the Salmon Recovery Strategy for the state. BMPs improvement is an early action under the plan scheduled for the first two years of plan implementation by the state.

General Actions designed to improve water quality

The following general actions are planned to address water quality needs in Washington.

- Secure a source of permanent and ongoing funding for the FARM*A*SYST/HOME*A*SYST program within Washington State University.
- Build capacity in conservation districts to better deliver water quality programs by providing a stable source of funding.
- Actively engage agricultural producer groups in developing and implementing new BMPs.

- Expand well water protection program in areas with moderate to high potential for contamination. Support Ground Water Management Areas (GWMA) projects around the state.
- Establish a MOA with NRCS and WSU to evaluate BMP effectiveness.
- Use SRF low-interest loans to help agricultural producer groups in developing and implementing new of BMPs.
- Evaluate impacts of grazing on water quality in Washington.
- Study the feasibility of converting open gravity canals and other current delivery systems to more efficient systems, including pressurized pipe.
- Develop an education and outreach program targeted at small farms water quality and ESA compliance.

<u>Management Measure Number IIA</u>: Erosion and Sediment Control

Description from Federal Guidance

Apply the erosion component of a Conservation Management System (CMS) as defined in the Field Office Technical Guide of the U.S. Department of Agriculture - Soil Conservation Service to minimize the delivery of sediment from agricultural lands to surface waters.

An additional source of sediments into water bodies is through wind erosion. Implementation of wind erosion BMPs is voluntary. EPA provides backup enforcement if areas are out of compliance with federal standards.

Design and install a combination of management and physical practices to settle solids and associated pollutants in runoff delivered from the contributing area for storms of up to and including a 10-year, 24-hour frequency.

1998 Findings from EPA and NOAA

"Washington's program does not include management measures in conformity with the 6217(g) guidance. The State has identified a back-up enforceable authority but has not yet demonstrated the ability of the authority to ensure implementation of the agriculture management measures throughout the 6217 management area."

Existing Statute(s) and Regulations

Natural Resource Conservation Service Field Office Technical Guides Water Pollution Control Act (Chapter 90.48 RCW)

Description of Current Programs in Washington

This management measure designed to address erosion and sediment control is addressed primarily through voluntary efforts by conservation districts, cooperative extension and NRCS. The primary focus is on getting farmers to apply best management practices as defined in the NRCS field office technical guides (FOTG). Each management measure (MM) component is compared to the FOTG below.

MM Component	Standard Numbers / Description
Apply the erosion	329 - Conservation tillage (reduce sheet or rill erosion,
component of a	reduce transport of contaminants. Includes no-till, ridge-till,
Conservation	strip-till, mulch-till, and reduced till)
Management System	332 - Contour buffer strips (reduce sheet or rill erosion,
(CMS) to minimize the	reduce transport of contaminants)
delivery of sediment from	330 - Contour farming (reduce erosion and control water)
agricultural lands to	335 - Controlled drainage (increase infiltration & reduce
surface waters.	runoff, reduce nitrates)

- **342 Critical area planting** (control erosion in highly erodible areas)
- **393 Filter strip** (removing sediment, organic matter and other pollutants from runoff and waste water)
- **310 Bedding** (improve surface drainage, minimize water ponding)
- 386 Field border (reduce water erosion)
- **423 Hillside ditch** (minimize sediment in runoff waters, control flow of water from non-cultivated areas)
- 460 Land clearing (control soil erosion)
- **462 Precision land forming** (improve drainage and reduce erosion)
- **607 Field ditch** (collecting excess water & reducing erosion)
- **608 Surface drainage on main or lateral** (collecting excess water & reducing erosion)
- 329A Residue Management (reduce sheet or rill erosion)
- **344 Residue Management, seasonal** (reduce sheet or rill erosion)
- 391A Riparian forest buffer (create shade to lower stream temperatures and improve habitat, provide a source of wood and organic material, and reduce sediment, organic material, nutrients and pesticides in surface runoff)
- **612 Tree/shrub establishment** (provides erosion control, supports riparian forest buffer establishment)
- 555 Rock barrier (check erosion on sloping land)
- 557 Row arrangement (prevent erosion)
- **580 Streambank and shoreline protection** (vegetation or structures to stabilize and protect banks of streams, lakes estuaries and excavated channels from scour and erosion)
- 585 Contour strip cropping (reduce soil erosion on sloping cropland)
- **586 Strip cropping** controls erosion and runoff on sloping croplands.
- 588 Buffer strip cropping (reduce soil erosion)
- **606 Subsurface drain** (reduce erosion and improve water quality)
- **600 Terrace** (reduce soil erosion)
- **412 Grassed waterway** (convey runoff without degrading water quality)
- **210 Irrigation erosion control (polyacrylamide)** (use of PAM to control erosion in irrigation systems)
- 484 Mulching (reduces runoff and erosion)

Implementation of wind erosion BMPs is

- 335 Controlled drainage (reduce wind erosion)
- 589 Cross wind stripcropping (reduce wind erosion)

voluntary.	392 - Field wind break (reduce wind erosion) 386 - Field border (reduce wind erosion) 329A - Residue Management (reduce wind erosion) 344 - Residue Management, seasonal (reduce wind erosion) 589 - Wind strip cropping (reduce wind erosion and soil creep) 609 - Surface roughening (reduce wind erosion) 380 - Windbreak/shelterbelt establishment (reduce wind erosion) 422 - Herbaceous wind barriers (reduces soil erosion from
Design and install a combination of management and physical practices to settle solids and associated pollutants in runoff delivered from the contributing area for storms of up to and including a 10-year, 24-hour frequency.	wind) 350 - Sediment basin (reduce or abate pollution by providing basins for deposition and storage of silt, sand gravel, stone, agricultural wastes and other detritus; large sediment basins must comply with National Engineering Handbook Standards) 638 - Water and Sediment Control Basin (structure to trap sediment and control runoff to prevent pollution) 410 - Grade stabilization structure (controls grade and head cutting in natural and artificial channels)

Education and Technical Assistance: Local conservation districts, the NRCS, and Cooperative Extension provide education and technical assistance to growers in implementing best management practices in agriculture. Districts encourage the preparation and use of farm plans, which are based on NRCS standards as set in the Field Office Technical Guide.

Incentives: Financial assistance for implementing farm plans and best management practices is provided through the NRCS EQIP program. The CREP program will also assist in reducing erosion and sediment through the lease or purchase of riparian buffer areas. There is an EQIP wind erosion project in Franklin and Benton Counties that pays farmers to increase residue left on their fields.

Enforcement: In the case of a discharge of sediment to a water body, Ecology enforces the general prohibition in the State's Water Pollution Control Act (Chapter 90.48 RCW). Erosion and sediment problems are directed to Ecology through complaints. Ecology responds to complaints and works with conservation districts through the Agricultural MOA.

Additional needs to meet this measure

Review and update of these standards are needed to ensure they protect water quality and fish habitat.

Actions to satisfy management measures

- Update Field Office Technical Guide (FOTGs) for use by NRCS and CDs
- Implement Conservation Reserve Enhancement Program

Management Measure Number IIB1 and IIB2:

Facility Wastewater and Runoff from Confined Animal Facility Management (Large Units)

Management Measure for Facility Wastewater and Runoff from Confined Animal Facility Management (Small Units)

Note: Washington's response to these two management measures and programs to implement are the same.

Description from Federal Guidance

Limit the discharge from the confined animal facility to surface waters by:

- (1) Storing both the facility wastewater and the runoff from confined animal facilities that is caused by storms up to and including a 25-year, 24-hour frequency storm. Storage structures should:
 - (a) Have an earthen lining or plastic membrane lining, or
 - (b) Be constructed with concrete, or
 - (c) Be a storage tank.
- (2) Managing stored runoff and accumulated solids from the facility through an appropriate waste utilization system.

1998 Findings from EPA and NOAA

"Washington's program does not include management measures in conformity with the 6217(g) guidance. The State has identified a back-up enforceable authority but has not yet demonstrated the ability of the authority to ensure implementation of the agriculture management measures throughout the 6217 management area.

The Dairy Waste Management Act (Chapter 90.64 RCW), through the NPDES Dairy Waste General Discharge Permit, requires dairies designated as concentrated animal facilities (CAFOs), generally those with greater than 700 head, to develop and implement an animal waste management plan. Smaller dairies can be designated a CAFO upon determining that they are a significant contributor of pollution. However, dairies with less than 700 head and other confined animal facilities as defined in the (g) guidance are not addressed."

Existing Statute(s) and Regulations

Water Pollution Control Act (Chapter 90.48 RCW)
Dairy Nutrient Management Act (Chapter 90.64 RCW)
NRCS Field Office Technical Guides

Description of Current Programs in Washington

This management measure is designed to address large and small confined animal facilities. Washington manages all CAFOs and AFOs through a combination of permits issued by the Department of Ecology and the voluntary efforts by conservation districts, CE and NRCS. The primary focus of the effort is to get farmers to develop and implement best management practices as defined in the NRCS field office technical guides (FOTG). The applicable standard is shown for each component of the management measure (MM) below.

MM Component	Standard Numbers / Description
To adequately meet this management	521(A-E) - Pond sealing or lining (reduce seepage
measure, limit the discharge from the	losses in ponds to an acceptable level - covers
confined animal facilities to surface	asphalt, bentonite, cationic emulsion, soil dispersion
waters by:	materials)
	313 - Waste storage facility (temporary storage of
(1) Storing both the facility wastewater	wastes, design volume to meet a 25 year 24 hour
and the runoff from confined animal	storm event)
facilities that is caused by storms up to	359 - Waste treatment lagoon (biologically treat
and including a 25-year, 24-hour	waste, reduce water pollution)
frequency storm. Storage structures	558 - Roof runoff management (collecting,
should:	controlling and disposing of runoff water from roofs)
(a) Have an earthen lining or	312 - Waste management system (components for
plastic membrane lining, or	managing liquid and soil waste to prevent pollution)
(b) Be constructed with concrete,	425 - Waste storage pond (minimum design
or	requirements for storage of wastes, design volume to
(c) Be a storage tank.	meet a 25 year 24 hour storm event)
	313 - Waste storage structure (structure for
	temporary storage of wastes, includes tanks and
	stacks)
	358 - Waste transfer (structures, conduits and
	equipment to transfer waste safely)
	359 - Waste treatment lagoon (biological waste
·	treatment facility to prevent surface and groundwater
·	pollution)
	·
(2) Managing stored runoff and	590 - Nutrient management
accumulated solids from the facility	"Nutrient application rates will be based on realistic
through an appropriate waste utilization	yield goals for the crop and nutrient levels in the
system.	soil."
	"Time fertilizer application to coincide with nutrient
	uptake by the crop, allowing appropriate lead time for
	incorporation and mineralization."
	"Application rates will be based on the most

environmentally sensitive nutrient using <u>agronomic</u> <u>application rate</u> for the crop."

"Special consideration will be given to lands with a groundwater or surface water quality concern area where nutrients are applied."

Use this standard "on soils that indicate a <u>high</u> sensitivity and vulnerability to surface runoff or deep percolation from the FOCS Nutrient Screening Procedure."

"Sites will be managed to minimize off-site movements of nutrients."

In <u>nutrient management plans</u>, "the following items will be documented on the plan map, in the plan narratives, or NRCS and crop consultant job sheets:

- a) location
- b) extent in acres
- c) nutrient budget worksheets
- d) nutrient credits
- e) sources of nutrients
- f) nutrient timing, application and placement
- g) leaching index and runoff
- h) irrigation water management soil tests"

Education and Technical Assistance: Local conservation districts, NRCS and CE provide education and technical assistance to growers in implementing best management practices in agriculture. Districts encourage the preparation and use of comprehensive farm plans, which are based on NRCS standards as set in the Field Office Technical Guide (see above). The NRCS standards are consistent with the requirements of this management measure. In addition, CE has set specific education goals, resulting in at least 4900 farms and 150,000 acres that implement BMPs for nutrient management. The primary concern about this program is the ability of local CD and NRCS staff to provide the technical assistance needed to meet the schedule for compliance in the DNMA.

Incentives: Financial assistance for implementing farms plans and best management practices is provided through the NRCS EQIP and other funding programs. The State Revolving Fund also provides low-interest loans for BMP implementation. The State Conservation Commission also provides \$1.5 million in cost-share funds specifically for dairy producers every two years. The total amount available from state and federal cost share and loan programs at this time is a limiting factor for dairy compliance with the DNMA.

FINAL: Washington's Nonpoint Source Management Plan

Enforcement: In the case of a discharge of animal waste, sediment, or contaminated runoff to a water body, Ecology enforces the general prohibition in the State's Water Pollution Control Act (Chapter 90.48 RCW). Since adoption of 208 Plans under the federal Clean Water Act in the 1970's, dairy farms have been the priority category of animal feeding operation in Washington needing to improve animal waste management practices to achieve federal and state water quality goals. Dairy farms continue to be the priority category of animal feeding operation addressed by Ecology under Chapter 90.64 RCW.

The Dairy Nutrient Management Act (DNMA) requires all dairies in the State to register with Ecology. Ecology must inspect all dairies by October, 2000, and respond to any complaints regarding a dairy operation. Currently, 99 percent of the 750 dairies in the state have registered, and about 500 have been inspected. NPDES permit coverage is issued to dairy farms meeting the definition of a CAFO. About 25 dairy farms currently have permit coverage.

The DNMA requires all dairies to prepare and implement a dairy nutrient management plan by December 31, 2003. Plans must be approved by the local conservation district and follow NRCS standards unless alternative methods are established by the Conservation Commission or a Professional Engineer. For more details on the DNMA see the introductory discussion for Agriculture section.

Ecology is addressing water quality problems associated with non-dairy animal feeding operations in three primary ways. The first is through direct regulatory action. Where a significant current or potential water quality problem is identified on a site, Ecology will issue administrative orders to require the operator to clean up the problem or take action to prevent the problem from occurring. Ecology has take actions on sites ranging in size from a few pigs to over 100,000 chickens. With recent increases in staffing, Ecology is using this approach with increased frequency.

A second approach is through implementation of the agency AFO/CAFO policy. This is a complaint-based approach that leads to implementation under the Agricultural MOA. Farms with long-term animal waste management problems are identified through complaints and other agency observations. Once identified they referred to the local conservation district for farm plan development and other forms of assistance. If the owner or operator fail to cooperate, Ecology issues an order that results in action to correct the problem.

A third approach is through voluntary request by the operator. Some facilities come to Ecology and request a discharge permit. National Pollution Discharge Elimination System (NDPES) permits have been issued to the seven largest beef cattle feedlots in the State. They involve the development of a comprehensive farm plan that helps Ecology track the movement of waste on and off the operation's property.

A fourth approach to address non-dairy waste problems focuses on implementing a local plan. Shellfish closure response plans and TMDLs provide a way for Ecology to take

action to clean up problems on behalf of a community effort. Where operations have been the focus of load reduction efforts in a plan, Ecology will work with the landowner and operator to fix problems associated with the animal keeping activities. Where voluntary actions are not achieving the goals set in the plan, Ecology issues orders to producers to clean up the pollution problem.

Additional needs to meet this measure

No additional actions are required to meet this management measure.

Actions to satisfy management measures

Adequate programs exist to meet this management measure.

Additional actions to improve water quality

• Adequately fund required dairy nutrient management planning and provide meaningful financial assistance programs to achieve goals.

Management Measure Number IIC: Nutrient Management Measure

Description from Federal Guidance

Develop, implement, and periodically update a nutrient management plan to:

- 1. apply nutrients at rates necessary to achieve realistic crop yields,
- 2. improve the timing of nutrient application, and
- 3. use agronomic crop production technology to increase nutrient use efficiency. When the source of the nutrients is other than commercial fertilizer, determine the nutrient value and the rate of availability of the nutrients. Determine and credit the nitrogen contribution of any legume crop. Soil and plant tissue testing should be used routinely.

1998 Findings from EPA and NOAA

"Washington's program does not include management measures in conformity with the 6217(g) guidance. The State has identified a back-up enforceable authority but has not yet demonstrated the ability of the authority to ensure implementation of the agriculture management measures throughout the 6217 management area."

Existing Statute(s) and Regulations

Water Pollution Control Act (Chapter 90.48 RCW)
Ground Water Quality Standards (Chapter 173-200 WAC)
Water Quality Standards for Surface Waters (Chapter 173-201A WAC)
NRCS Field Office Technical Guide

Description of Current Programs in Washington

Education and Technical Assistance: Local conservation districts, the NRCS and CE provide education and technical assistance to growers in implementing best management practices in agriculture. BMPs are achieved through the development and implementation of farm plans. Nutrient management is a key component to all farm plans.

Cooperative Extension has set specific goals to implement BMPs for nutrient management on at 8000 farms covering 200,000 acres. These BMPs are essentially similar to the management measure. Cooperative Extension continues to evaluate new methods of crop production to minimize use of nutrients.

In addition, the Department of Agriculture's Chemigation and Fertigation Technical Assistance Program is working with growers to protect water resources from the potential hazard of pesticides and fertilizers. Agriculture staff are also evaluating current fertigation rules to determine what revisions need to be made to provide more protection to ground water from fertigation practices.

Incentives: Financial assistance for implementing best management practices is provided through the NRCS EQIP program. Commodity groups receive funding through loans from the State Revolving Fund. One emphasis of these two funding efforts is to improve irrigation practices which reduce erosion and result in more efficient application of nutrients to certain types of crops (eg. Hops.)

Enforcement: In the case of a discharge of nutrients to a water body, Ecology enforces the general prohibition in the State's Water Pollution Control Act (Chapter 90.48 RCW). Nutrient problems are directed to Ecology through complaints. Ecology responds to complaints and works with conservation districts through the Agricultural MOA.

MM Component **Standard Numbers / Description** To meet the Nutrient Management 590 - Nutrient management Measure, technical guides must develop, 1) "Nutrient application rates will be implement, and periodically update a based on realistic yield goals for the nutrient management plan to: 1) apply **crop** and nutrient levels in the soil." nutrients at rates necessary to achieve 2) "Time fertilizer application to realistic crop yields; 2) improve the timing coincide with nutrient uptake by the of nutrient application; 3) use agronomic crop, allowing appropriate lead time for crop production technology to increase incorporation and mineralization." nutrient use efficiency 3) "Application rates will be based on the most environmentally sensitive nutrient using agronomic application rate for the crop."

. Nutrient management plans contain the following core components:

- (1) Farm and field maps showing acreage, crops, soils, and waterbodies.
- (2) Realistic yield expectations for the crop(s) to be grown, based primarily on the producer's actual yield history, State Land Grant University yield expectations for the soil series, or SCS Soils-5 information for the soil series.
- (3) A summary of the nutrient resources available to the producer, which at a minimum include:
- (a) Soil test results for pH, phosphorus, nitrogen, and potassium;
- (b) Nutrient analysis of manure, sludge, mortality compost (birds, pigs, etc.), or effluent (if applicable);
- (c) Nitrogen contribution to the soil from legumes grown in the rotation (if applicable); and
- (d) Other significant nutrient sources (e.g., irrigation water).
- (4) An evaluation of field limitations based on environmental hazards or concerns, such as:
- (a) Sinkholes, shallow soils over fractured bedrock, and soils with high leaching potential,
- (b) Lands near surface water,
 - (c) Highly erodible soils, and
 - (d) Shallow aquifers.
- (5) Use of the limiting nutrient concept to establish the mix of nutrient sources and requirements for the crop-based on a realistic yield expectation.
- (6) Identification of timing and application methods for nutrients to: provide nutrients at rates necessary to achieve realistic crop yields; reduce losses to the environment; and avoid applications as much as possible to frozen soil and during periods of leaching or runoff.
- (7)Provisions for the proper calibration and operation of nutrient application equipment.

- 1-In nutrient management plans, "the following items will be documented on the plan map, in the plan narratives, or NRCS and crop consultant job sheets:
- i) location
- j) extent in acres
- k) nutrient budget worksheets
- 1) nutrient credits
- m) sources of nutrients
- n) nutrient timing, application and placement
- o) leaching index and runoff
- p) irrigation water management
- q) soil tests"
- 2- "Time fertilizer application to coincide with nutrient uptake by the crop, allowing appropriate lead time for incorporation and mineralization."
- 3- See 1e.
- 4- See 1g.
- 5- "Nitrogen, phosphorus and potassium are the major nutrients. Application rates will be based on the most environmentally sensitive nutrient using agronomic application rate for the crop."
- 6- See 1f.
- 7- "The owner and operator will be responsible for operating all application equipment safely and maintaining this practice." (includes 6 specific requirements

Additional needs to meet this measure

No additional actions are required to meet this management measure.

Actions to satisfy management measures

Adequate programs exist to meet this management measure.

Additional actions to improve water quality

- Secure a source of permanent and ongoing funding for the FARM*A*SYST/HOME*A*SYST program within Washington State University.
- Actively engage agricultural producer groups in developing and implementing new BMPs.
- Expand well water protection programs to prioritize where to focus technical support and compliance inspections. Support Ground Water Management Areas (GWMA) projects around the state.
- Use SRF low-interest loans to help agricultural producer groups develop and implement new BMPs.

<u>Management Measure Number IID:</u> Pesticide Management

Description from Federal Guidance

To reduce contamination of surface water and ground water from pesticides:

- 1. Evaluate the pest problems, previous pest control measures, and cropping history;
- 2. Evaluate the soil and physical characteristics of the site including mixing, loading, and storage areas for potential leaching or runoff of pesticides. If leaching or runoff is found, steps should be taken to prevent further contamination;
- 3. Use integrated pest management (IPM) strategies that:
 - (a) apply pesticides only when an economic benefit to the producer will be achieved (i.e., applications based on economic thresholds); and
 - (b) apply pesticides efficiently and at times when runoff losses are unlikely;
- 4. When pesticide applications are necessary and a choice of registered materials exists, consider the persistence, toxicity, runoff potential, and leaching potential of products in making a selection;
- 5. Periodically calibrate pesticide spray equipment; and
- 6. Use anti-backflow devices on hoses used for filling tank mixtures.

1998 Findings from EPA and NOAA

"Washington's program does not include management measures in conformity with the 6217(g) guidance. The State has identified a back-up enforceable authority but has not yet demonstrated the ability of the authority to ensure implementation of the agriculture management measures throughout the 6217 management area.

The Pesticide Applicators Act (17.21 RCW) regulates the applicators of restricted use pesticides. However, it does not address non-restricted use pesticides."

Existing Statute(s) and Regulations

Pesticide Control Act (Chapter 15.58 RCW)
.150(2)(c) Unlawful Practices
Washington Pesticide Applications Act (Chapter 17.21 RCW)
Pesticide Regulations (Chapter 16-228 WAC)
Water Pollution Control Act (Chapter 90.48 RCW)

Description of Current Programs in Washington

The Washington Pesticide Control Act (WPCA) requires that all pesticides transported, sold, distributed or used in the state be registered by the state Department of Agriculture. Contrary to 1998 findings from EPA and NOAA, Chapter 17.21 RCW addresses the application of all pesticides including General Use and Home and Garden.

The following sections of the WPCA relate to the registration of pesticides:

- .050 Requires the registration of all pesticides
- .060 Specifies the content of the registration application
- .065 Allows for the protection of privileged or confidential information
- .070 Establishes an annual fee for registering pesticides
- .080 Establishes an additional fee for late registration
- .090 Exempts government agencies from the registration fee
- .100 Established the criteria for registering a pesticide
- .110 Allows WSDA to refuse to register or cancel the registration of any pesticide
- .120 Allows for the suspension of the registration of a pesticide

A number of pesticides used on agricultural lands in Washington State are restricted use pesticides. However, a great many of the pesticides used are General Use. The application of General Use pesticides for agricultural purposes does not require a pesticides applicator license.

In addition, RCW 15.58.160(1)(a) prohibits the sale of restricted use pesticides and subsection (2)(a) prohibits the sale of restricted use pesticide to anyone who does not have a pesticide license. Licensing of pesticide users is governed by the Pesticide Applicator Act (Chapter 17.21 RCW). This act sets the following requirements for obtaining a pesticide license:

- .150(11) must be qualified to manage pesticides
- .132 made application to the Department of Agriculture
- .134 successfully pass an examination of the department.

WSU Cooperative Extension provides a study manual for the Private Applicator. The study manual covers federal and Washington State pesticide laws, pesticide formulations, label information, pesticide hazards and health concerns, safe use of pesticides to protect people, the environment, non target plants, wildlife, and beneficial insects; application and calibration of equipment; historical pest control, integrated pest management, management of insects and mites, weeds, plant diseases, and vertebrate pests."

RCW 15.58.150(2)(c) makes it unlawful "for any person to use or cause to be used any pesticides contrary to label directions..."

To reduce contamination of surface water and ground water from pesticides:

MM Component	Standard Number or Rule / Description
Evaluate the pest problems, previous pest control measures, and cropping history;	595 - Pest management (managing agricultural pest infestations to reduce adverse effects on plant growth, crop production, and environmental resources) Pesticide Applicator's Study Manual: historical pest control

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Evaluate the soil and physical characteristics of the site including mixing, loading, and storage areas for potential leaching or runoff of pesticides. If leaching or runoff is found, steps should be taken to prevent further contamination; Use integrated pest management (IPM) strategies that: • apply pesticides only when an economic benefit to the producer will be achieved (i.e., applications based on economic thresholds); and • apply pesticides efficiently and at times when runoff losses are unlikely;	WAC 16-228-185(2)(3) "No person shall pollute streams lakes or other water supplies in pesticide loading, mixing and application." Pesticide Applicator's Study Manual: Soil and terrain evaluation is part of the section on the safe use of pesticides 595 - Pest management ("Integrated pest management (IPM principles will be incorporated into all management activities." Pesticide Applicator's Study Manual: Section on integrated pest management
When pesticide applications are necessary and a choice of registered materials exists, consider the persistence, toxicity, runoff potential, and leaching potential of products in making a selection;	Pesticide Applicator's Study Manual: These actions are included in the section on safe use of pesticides.
Periodically calibrate pesticide spray equipment; and	WAC 16-228-180(1)(d) prohibits the operation of "faulty ro unsafe apparatus." WAC 16-228-190(7) "All apparatus shall be kept in good repair and only that apparatus which capable of performing all functions necessary to ensure proper and thorough application of pesticides shall be used." Pesticide Applicator's Study Manual: Section on application and calibration of equipment
Use anti-backflow devices on hoses used for filling tank mixtures.	WAC 16-228-185(3) "Adequate, functioning devices and procedures to prevent back siphoning shall be used."

Education and Technical Assistance: The Department of Agriculture has a water quality protection program aimed at reducing levels of pesticides and nitrates in ground water. In addition, the Department is developing and implementing a Fertigation and Chemigation Technical Assistance Program to help operators protect water resources.

Specific goals have been set by Cooperative Extension for education, resulting in at least 4,900 farms and 200,000 acres implementing BMPs for pesticide management. These BMPs are essentially similar to the management measure. In additional to on-site technical assistance, WSU's Tri-cities branch maintains a database of current pesticide registrations and their labels in the Pesticide Notification Network. Commodity groups

are notified when the parameters of use are changed for a pesticide. The information is also available on the Internet on a fee basis.

Incentives: The NRCS EQIP and other funding programs provide financial assistance for implementing best management practices. In addition, the State's Commission on Pesticide Registration funds research leading to the registration of newer, reduced risk pesticides as well as bio-rational agents and Integrated Pest Management methods. Currently, the Commission provides \$1 million per biennium for such grants.

Department of Agriculture regularly collects unusable pesticides from residents, farmers, business owners, retailers and dealers, and the general public in their Waste Pesticide Collection Program. The goal of this program is to eliminate the potential source of contamination to the environment.

Conservation Districts operate a State-funded cost share program for water quality grants. Much of districts' water quality appropriations go on the ground as cost share to actually construct and implement BMPs.

Integrated Pest Management

Chapter 17.15 RCW which requires implementation of integrated pest management (IPM) by all state agencies and state educational institutions with pest control responsibilities. According to RCW 17.15.010, IPM is defined as:

"a coordinated decision-making and action process that uses the most appropriate pest control methods and strategy in an environmentally and economically sound manner to meet agency programmatic pest management objectives. The elements of integrated pest management for preventing pest problems include:

- 1. monitoring for the presence of pests and pest damage;
- 2. establishing the density of the pest population, that may be set at zero, that can be tolerated or correlated with a damage level sufficient to warrant treatment of the problem based on health, public safety, economic, or aesthetic thresholds;
- treating pest problems to reduce populations below those levels established by damage thresholds using strategies that may include biological, cultural, mechanical, and chemical control methods and that must consider human health, ecological impact, feasibility, and cost-effectiveness; and
- 4. evaluating the effects and efficacy of pest treatments."

The Washington State Commission on Pesticide Registration also provides \$1 million per biennium to research and market integrated pest management systems and techniques. The use of these funds has made Washington State the largest supported of research related to Organic Farming in the nation.

Enforcement: The Department of Agriculture licenses about 25,000 pesticide applicators in every city and rural area of the State. WSDA performs a variety of inspections

pertaining to the manufacture, sale, distribution, use, and disposal of pesticides as well as responds to complaints from citizens. In addition, the Department has rules requiring secondary and operational area containment at bulk pesticide and fertilizer storage facilities.

In the case of a discharge of pesticides to a water body, Ecology enforces the general prohibition in the State's Water Pollution Control Act (Chapter 90.48 RCW). If human exposure occurs, the Department of Health may also take enforcement action. The actions of the three agencies are coordinated through the Pesticide Incident Tracking System.

Additional needs to meet this measure

No additional actions are required to meet this management measure.

Actions to satisfy management measures

Adequate programs exist to meet this management measure.

Additional actions to improve water quality

- Refine and update state restrictions on pesticide applications and provide technical assistance on proper use of pesticides to ensure compliance with the *Endangered Species* and *Clean Water Acts*, in both rural and urban areas.
- Secure a source of permanent and ongoing funding for the FARM*A*SYST/ HOME*A*SYST program within Washington State University. (Ag 10)
- Actively engage agricultural producer groups in developing and implementing new BMPs. (Ag 13)
- Expand well water protection programs in order to prioritize where to focus technical support and compliance inspections. Support Ground Water Management Areas (GWMA) projects around the state. (Ag 3)
- Develop an education and outreach program targeted at small farms water quality and ESA compliance. (Ag 11)
- Refine and update state restrictions on pesticide applications and provide technical assistance on proper use of pesticides with the *Endangered Species* and *Clean Water Acts*, in both rural and urban areas. (Ag 8)

Management Measure Number IIE:

Grazing Management

Description from Federal Guidance

Protect range, pasture and other grazing lands;

- (1) By implementing one or more of the following to protect sensitive areas (such as streambanks, wetlands, estuaries, ponds, lake shores, and riparian zones):
 - (a) Exclude livestock,
 - (b) Provide stream crossings or hardened watering access for drinking,
 - (c) Provide alternative drinking water locations,
 - (d) Locate salt and additional shade, if needed, away from sensitive areas
 - (e) Use improved grazing management (e.g., herding) to reduce the physical disturbance and reduce direct loading of animal waste and sediment caused by livestock; and
- (2) By achieving either of the following on all range, pasture, and other grazing lands not addressed under (1):
 - (a) Implement the range and pasture components of a Conservation

 Management System (CMS) as defined in the Field Office Technical Guide

 of the USDA-NRCS (see Appendix 2A of this chapter) by applying the

 progressive planning approach of the NRCS, or
 - (b) Maintain range, pasture, and other grazing lands in accordance with activity plans established by either the Bureau of Land Management of the U.S. Department of the Interior or the Forest Service of USDA.

1998 Findings from EPA and NOAA

"Washington's program does not include management measures in conformity with the 6217(g) guidance. The State has identified a back-up enforceable authority but has not yet demonstrated the ability of the authority to ensure implementation of the agriculture management measures throughout the 6217 management area."

Existing Statute(s) and Regulations

Water Pollution Control Act (Chapter 90.48 RCW) USFS Standards and Guides NRCS Field Office Technical Guides HB 1309 Standards

Description of Current Programs in Washington

Two primary mechanisms are in place to plan and implement grazing programs on range and pasturelands in Washington.

The NRCS assists private landowners with range management issues focusing on Coordinated Resource Management Planning processes. All resource conservation

planning by the NRCS must integrate the policy and procedures outlined in the National Planning Manual with the technical standards and guidelines outlined in the Field Office Technical Guide and other Program Manuals (Watershed Planning Manual, RC&D Manual, RAMP Manual, etc.) and topical manuals (Engineering Field Manual, Agricultural Waste Handbook, etc.) to develop technically sound and properly developed conservation management systems.

A Conservation Management System (CMS) is the umbrella term that includes any combination of practices and management that achieves the level of treatment of the five (5) resources specified by the quality criteria used. These treatment criteria are stated in either qualitative or quantitative terms and will become more refined over time.

State range and pasturelands are managed under the requirements of HB 1309 - Ecosystem Standards for State-Owned Agricultural and Grazing Land. This bill required the state to set strict standards to protect fish and wildlife on state lands. The standards address stream bank erosion, riparian management zones, plant community status, soil stability and protection of native plant species. Tools to achieve the standards rely on the implementation of NRCS standards.

On federal lands the USFS employs its standards and guides to prevent water quality programs and impacts to fish. These will be reviewed under the federal consistency requirements of Section 319 of the CWA.

Management measures for grazing must protect range, pasture and other grazing lands by:

MM Component

- 1. Implementing one or more of the following to protect sensitive areas (such as stream banks, wetlands, estuaries, ponds, lake shores, and riparian zones):
- (a) Exclude livestock,
- (b) Provide stream crossings or hardened watering access for drinking,
- (c) Provide alternative drinking water locations,
- (d) Locate salt and additional shade, if needed, away from sensitive areas
- (e) Use improved grazing management (e.g., herding) to reduce the physical disturbance and reduce direct loading of animal waste and sediment caused by livestock; and

FOTG Numbers / Description

USFS Standards and Guides NRCS Standards:

- 575 Animal trails and walkways (divert travel from ecologically sensitive areas)
- **382 Fencing** (exclude livestock and big game, protect riparian plantings)
- **550 Range seeding** (prevent excessive soil loss and erosion)
- 614 Trough or Tank (watering facilities for livestock at selected locations that will protect vegetative cover through proper distribution of grazing; eliminates the need for livestock to be in streams)
- **548 Grazing land mechanical treatment** (reduces runoff and increases infiltration leading to improved water quality)

- 2. Achieving either of the following on all range, pasture, and other grazing lands not addressed under (1):
- (a) Implement the range and pasture components of a Conservation Management System (CMS) as defined in the Field Office Technical Guide of the USDA-NRCS (see Appendix 2A of this chapter) by applying the progressive planning approach of the NRCS, or
- (b) Maintain range, pasture, and other grazing lands in accordance with activity plans established by either the Bureau of Land Management of the U.S. Department of the Interior or the Forest Service of USDA.

NRCS FOTG - Dictates that all plans developed for private range and pasture lands must meet basic requirements of a Conservation Management System.

USFS Standards and Guides are used on all Federal range lands under the control of the USFS.

On federal lands: Usage of federal lands is under the jurisdiction and the responsibility of the respective federal agency, as noted above. Ecology will verify the implementation of this management measure on federal lands through the federal consistency provisions of the federal Clean Water Act (33 USC 1329).

On state lands: The Public Lands Act requires the State Conservation Commission to establish guidelines for grazing management on state lands. These guidelines meet or exceed the standards of this management measure. If the guidelines are not followed, the Department of Natural Resources may revoke the lease or grazing permit.

On private lands: The agricultural education and incentive programs were noted in the overview of the agricultural management measures. In cases of sediment or manure discharge to a water body, Ecology may enforce the Water Pollution Control Act.

Additional needs to meet this measure

The state does not have a clear picture of the severity of grazing and water quality problems.

Actions to satisfy management measures

• Evaluate impacts of grazing on water quality in Washington.

<u>Management Measure Number IIF:</u> Irrigation Water Management

Description from Federal Guidance

To reduce nonpoint source pollution of surface waters caused by irrigation.

- (1) Operate the irrigation system so that the timing and amount of irrigation water applied match crop water needs. This will require, as a minimum:
 - (a) the accurate measurement of soil-water depletion volume and the volume of irrigation water applied, and
 - (b) uniform application of water.
- (2) When chemigation is used, include backflow preventers for wells, minimize the harmful amounts of chemigated waters that discharge from the edge of the field, and control deep percolation. In cases where chemigation is performed with furrow irrigation systems, a tailwater management system may be needed.

The following limitations and special conditions apply:

- (1) In some locations, irrigation return flows are subject to other water rights or are required to maintain stream flow. In these special cases, on-site reuse could be precluded and would not be considered part of the management measure for such locations.
- (2) By increasing the water use efficiency, the discharge volume from the system will usually be reduced. While the total pollutant load may be reduced, the concentration of pollutants in the discharge may increase. In these special cases, where living resources or human health may be adversely affected and where other management measures do not reduce concentrations of nutrients and pesticides in the discharge, increasing water use efficiency would not be considered part of the management measure.
- (3) In some irrigation districts, the time interval between the order for and the delivery of irrigation water to the farm may limit the irrigator's ability to achieve the maximum onfarm application efficiencies that are otherwise possible.
- (4) In some locations, leaching is necessary to control salt in the soil profile. Leaching for salt control should be limited to the leaching requirement for the root zone.
- (5) Where leakage from delivery systems or return flows supports wetlands or wildlife refuges, it may be preferable to modify the system to achieve a high level of efficiency and then divert the "saved water" to the wetland or wildlife refuge. This will improve the quality of water delivered to wetlands or wildlife refuges by preventing the introduction of pollutants from irrigated lands to such diverted water.
- (6) In some locations, sprinkler irrigation is used for frost or freeze protection, or for crop cooling. In these special cases, applications should be limited to the amount necessary for crop protection, and applied water should remain on-site.

1998 Findings from EPA and NOAA

Washington's program does not include management measures in conformity with the 6217(g) guidance. The State has identified a back-up enforceable authority but has not yet demonstrated the ability of the authority to ensure implementation of the agriculture management measures throughout the 6217 management area.

Description of Current Programs in Washington

NRCS uses the following standards from the FOTG to meet this management measure.

MM Component	FOTG Numbers / Description		
(2) Operate the irrigation system so that the	449 - Irrigation water management		
timing and amount of irrigation water	(determining and controlling the rate,		
applied match crop water needs. This	amount, and timing of irrigation water in a		
will require, as a minimum:	planned and efficient manner)		
(a) the accurate measurement of soil-			
water depletion volume and the			
volume of irrigation water			
applied, and			
(b) uniform application of water.			
(3) When chemigation is used, include	WAC 16-228-185(3) "Adequate,		
backflow preventers for wells, minimize	functioning devices and procedures to		
the harmful amounts of chemigated	prevent back siphoning shall be used."		
waters that discharge from the edge of			
the field, and control deep percolation.			
In cases where chemigation is			
performed with furrow irrigation			
systems, a tailwater management system			
may be needed.			

Most irrigation occurs in eastern Washington, which is arid, in the Yakima River Basin and the Columbia Basin Project. The water for both these areas is provided by the federal Bureau of Reclamation to local irrigation districts, which in turn provide water to each individual grower. Delivery of water is generally through open, concrete-lined canals.

Several factors limit irrigated agriculture in Washington:

• Due to the aridity of the irrigated areas, water is reused several times before returning it back into the source. For example, in the Columbia Basin, water is diverted from the Columbia River at Grand Coulee Dam into Banks Lake for storage and distribution. The water in Banks Lake is used in the upper basin, and then flows to the Potholes Reservoir. Water from Potholes is used in the lower basin and recovered in Scootenay Reservoir, then feeds to the Esquatzel Coulee area. The water is then discharged back to the Columbia River near Pasco, nearly 200 miles downstream. In

addition, the water is reused several times between reservoirs, as the runoff from one field is used as the feed water for a lower one, prior to its return to the main canal.

- Due to the extensive nature of many of the reclamation projects, covering thousands of acres, and the reuse discussed above, water is delivered according to a schedule rather than an on-demand basis. The scheduled intervals may or may not match the specific needs of a grower in the system.
- Wetlands have appeared in irrigated areas since reclamation, and irrigation water is
 the source of the water for these wetlands. Many of these now harbor abundant
 wildlife, and some have even been designated as National Wildlife Refuges as well as
 state and private preserves. Examples of such areas are the North and South
 Columbia Basin and Seep Lakes National Wildlife Refuges.
- Water is used for cooling in orchards and some row crops in eastern Washington.

However, within these limitations, efforts are being made to promote water conservation in the irrigated agricultural community.

Education and Technical Assistance: As noted in the overview of agricultural management measures, local conservation districts and Cooperative Extension provide education and technical assistance to growers in implementing best management practices in agriculture. Specific goals have been set by CE, resulting in at least 5000 farms and 1.4 million acres implementing BMPs for irrigation water management. These are essentially similar to the management measure, and were established under section 208 of the Clean Water Act.

The Department of Agriculture Chemigation and Fertigation Technical Assistance Program is working with growers to make sure their irrigation systems have the appropriate backflow prevention devices and other system components. Properly configured and functioning systems reduce the risk of contaminating surface and ground water.

Incentives: Financial assistance for implementing best management practices is provided through the NRCS EQIP and other funding programs. SRF monies are also available to install more efficient irrigation systems. An example of the use of these financial incentives is the current efforts to convert the State's hops industry to drip irrigation. In addition, the State provides funds to purchase a portion of the saved water from willing growers.

Decrease in water use also provides a significant cost saving to growers.

Additional needs to meet this measure

- Irrigation water management continues to be an issue of concern for both water quality and fish habitat. A comprehensive approach is needed. (The Agriculture Fish and Water negotiations will address this need.)
- Headwater volumes could be reduced if systems are converted to pressurized delivery rather than gravity drain canals.
- Due to the fact that there are more than 6,000 irrigation systems in the state, many of which are not in compliance and at risk of polluting the environment, more resources should be dedicated to bringing these systems into compliance. The Department of Agriculture Chemigation and Fertigation program staff of two is dedicated to helping the agricultural community bring these systems into compliance but is overwhelmed by the workload. Additional staff would make the task more realistic.

Actions to satisfy management measures

- Develop a statewide Agricultural Comprehensive Plan to facilitate development of irrigation district plans.
- Study the feasibility of converting open gravity canals and other current delivery systems to more efficient systems, including pressurized pipe.

FOREST PRACTICES

BACKGROUND

The timber industry is the third largest industry in Washington. Over 20 million acres of private, State and federal lands are managed for commercial harvest. The 8 million acres belonging to the State have recently been appraised as containing timber worth some \$7 billion. Many State and county government programs receive financial support from timber sales. Of particular importance, the Timber Trust Fund finances the construction of new schools in the state. After a peak of over \$350 million dollars in 1990, State timber revenues were just under \$200 million in 1994. The following table shows the diversity of forest land ownership.

Table 5.2
ESTIMATED NUMBER OF FOREST OWNERS BY
OWNERSHIP SIZE IN WASHINGTON

Ownership Size Class (Acres)	Number of Owners	Percentage of Owners	Number of Acres	Percentage of Forested Acres
1-49	76,300	83.5	1,104,000	11.4
50-499	14,000	15.3	1,426,000	14.7
500-999	600	.7	368,000	3.8
1000-4999	400	.4	529,000	5.5
5000+	100	.1	6,245,000	64.6
' Total	91,400	100	9,670,000	100

From Thomas Burch, The Private Forest-Land Owners of the United States. 1994 Data Tables: West Review Draft, United States Department of Agriculture Forest Service, Northeastern Forest Experiment Station

Washington is one of the largest exporters of timber in the world. Products from Washington's forests include raw logs (most of which are exported to East Asia), other wood products (such as lumber and furniture), and pulp for papermaking. Many key national and international corporations have operations in the state.

Forest management techniques vary substantially depending on slopes, soils, water availability, tree species and ownership. Even-aged harvest is typical in western Washington. A combination of clear cut and selective harvest is used in eastern Washington.

Forest practices rules have been in place since the Forest Practices Act was updated by the legislature in 1974. The act and the associated rules were designed to improve reforestation and provide basic consideration for "public resources." The act has not changed substantially since that time, but the rules have undergone considerable revision. These revisions reflect the increased understanding and acceptance of the need to protect public resources while maintaining a viable timber industry in the state.

The Timber, Fish, and Wildlife (TFW) Agreement was initiated in 1986. Participants in the agreement include State agencies, tribes, landowners, and environmental groups. More recently, federal agencies (EPA, USFWS, USFS, and NMFS) and counties have been included in the process. TFW provides a framework, procedures and requirements for successfully managing the State's forests to meet the needs of a viable timber industry and at the same time protect public resources: fish, wildlife, and water as well as the cultural/archeological resources of Indian tribes within the state. Some of the issues are TMDLs and 303(d) listings, watershed analysis and other landscape approaches, riparian protection, road construction and maintenance, wetlands protection, forest chemical use, and conversion of forest land to other uses.

Since 1997, negotiations have been underway to address Clean Water Act (CWA) and Endangered Species Act (ESA) requirements through improved forest practices. In February 1999, rule proposals were made at the Forest Practices Board by the "5-caucus group" (county, State, and federal agencies, some tribes, and landowners). The proposal was called the Forests and Fish Report. The Forest Practices Board also received other proposals based on different views for buffer widths and changes to rules based on credible science. The legislature has since passed a bill that establishes most of the program elements outlined in the Forests and Fish Report, including landowner incentives and additional resources for agencies.

Local governments review specific harvest applications on State and private timberlands that involve a conversion of the timberland to some other land use or harvesting next to shorelines of the State. The Washington State Department of Fish and Wildlife (WDFW) requires a Hydraulic Project Approval (HPA) permit for any timber harvesting activity that occurs within or across the ordinary high water mark of waters of the State.

Several programs provide technical assistance and education to small timberland owners. The Natural Resource Conservation Service (NRCS), in conjunction with locally based conservation districts, helps timberland owners write forest conservation plans. The Forestry Incentive Program is administered by the NRCS and DNR provides technical assistance to timberland owners on forest production and habitat planning.

The management of federal timberlands is based on federal mandates. Washington State has agreements with the US Forest Service (USFS) and Bureau of Land Management (BLM) requiring protection of water quality on federal timberlands to meet or exceed the State's water quality standards.

Research is currently underway to determine the effectiveness of current best management practices (BMPs) for protecting water quality from timber harvesting activities. Included in the research are assessments of impacts to sediment, wildlife, and macro-invertebrates populations. Studies have been completed on the subjects of fertilizers, pesticides, and shade. These studies have resulted in improvements to both regulations and best management practices applied to timber harvesting. Research is ongoing.

FINAL: Washington's Nonpoint Source Management Plan

Watershed analysis and other cooperative efforts have been underway for some time in Washington. These programs focus on the needs of a specific watershed basin and design practices that address those needs. The Watershed Analysis method developed by the Timber, Fish, and Wildlife participants is now covered by the Forest Practices Rules. It provides one of the first working models in the nation for watershed management and decision making. Resource Management Plans have also been used to coordinate voluntary efforts within two major watersheds.

In conjunction with the other goals of watershed analysis, a process is currently underway to evaluate the suitability of Watershed Analysis as a format for assessing the Total Maximum Daily Load (TMDL) of a basin. The two processes have many similarities and provide a method to address broad scale water quality issues in the forested environment.

Habitat Conservation Plans (HCPs) are being developed on both private and State lands. The DNR is implementing an HCP to address the needs of threatened and declining wildlife species for all State-owned lands in western Washington and the east slope of the Cascade Mountains. Several large private landowners are also developing HCPs which, among other benefits, will enhance riparian habitat and water quality protection. A pilot program, Landowner Landscape Plans, has been undertaken by DNR to accomplish large scale planning.

There are a number of federal HCPs completed under section 10(a) of the federal ESA. DNR is monitoring the implementation of these plans via the forest practices application process. Plum Creek Timber Company, Port Blakely Tree Farms, and Murray Pacific are examples of large timber companies implementing their respective HCPs that include aquatic habitat protection measures. Simpson Timber has recently completed a combined HCP and TMDL which is currently under public review.

The description of these HCPs follows:

- 1. <u>Murray Pacific HCP</u> this 100 year multi-species HCP covers 54,610 acres in Lewis County in southwest Washington. The conservation strategy for aquatic habitat includes:
 - Watershed Analysis on more than 98 percent of the 54,610 acres.
 - Stream restoration measures;
 - Wetland surveys and monitoring peak stream temperatures; and
 - Detailed road inventories to address mass wasting and surface erosion in the watersheds;
 - Habitat reserves established on 10 percent of the vegetated land;
 - Retention of snags, downed woody debris, minimizing soil disturbance during harvest in forested wetlands, keeping skid trails and ground-based yarding systems to a minimum in forested wetlands, and harvest in a pattern to promote and maintain dispersal habitat for birds;
 - Monitoring to verify and validate the effectiveness of the HCP conservation measures.

- 2. Port Blakely HCP this 50 year multi-species HCP covers 7,486 acres in Grays Harbor and Pacific counties near the southwest coast of Washington. The conservation strategy benefiting aquatic habitat includes:
 - Adjusted harvest levels to accommodate a wider range of forest successional stages benefiting fish and wildlife species;
 - Special management practices to better enhance habitat;
 - Protecting stream areas. Techniques to address unstable slopes, surface
 erosion, stream shading, and other factors crucial to stream habitat spelled out
 in the Port Blakely mitigation measures approved by NMFS and USFWS;
 - Special protection measures for marbled murrelets, spotted owls, and northern goshawks;
 - Two-part monitoring plan. First, compliance monitoring to evaluate and document the company's performance under the plan and second, effectiveness monitoring to determine how well these conservation measures work.
- 2. Plum Creek HCP this 50 year multi-species HCP covers 418,690 acres in the central Cascades of Washington state. The conservation strategy benefiting aquatic habitat includes:
 - Riparian Habitat Area (RHAs) designation and protection is a corner stone of the HCP. RHAs and associated wetlands account for 12,000 acres of the Plum Creek HCP;
 - A five part mitigation strategy designed for the RHAs:
 - Stabilization of stream channels and the natural functioning of the physical stream processes;
 - Adequate accumulation of large woody debris in stream channels;
 - Adequate vegetation to minimize pollution from up-slope activities and maintain adequate stream shading;
 - Adequate nesting, roosting, and foraging and dispersal habitat for spotted owls;
 - A diversity of riparian habitat for riparian dependent life-forms;
 - Additional mitigation measures include watershed analysis on 20 watersheds within the first five years of the plan;
 - Further conservation measures include maintaining a diversity of stand structures, protection of special habitats, and curtailing yarding activities in sensitive areas;
 - The monitoring commitment for yearly habitat verification on stand structures, life-forms, and surveys for amphibians to adaptive management techniques as necessary.
- 3. <u>Simpson Timber HCP/TMDL</u> this 50-year aquatic?? HCP and TMDL covers ____ acres in the southern Olympic Peninsula of Washington state. This is the first combined HCP and TMDL to be completed in the nation. It points the way to the many opportunities and pitfalls that accompany a project of this magnitude. The conservation strategy benefiting aquatic habitat includes:

SOURCE CONTROL STRATEGY FOR FOREST MANAGEMENT

The Forest Practices Act governs all practices relating to the:

- Construction and maintenance of forest roads
- Conduct of forest harvesting including limits on the size, location, and timing of harvest
- · Required reforestation
- Specific riparian and wetland protection measures
- Conduct of watershed analysis
- Limitations on the timing and location of applying forest chemicals
- Application of SEPA
- Enforcement authority of DNR

Forestry in Washington is governed by the Forest Practices Act. The act established a Forest Practices Board which adopts regulations related to all aspects of forest practices from pre-harvest planning, through actual harvest, and including restoration and reforestation. The board has 12 members. Ecology is a member of the board and must concur with any rule developed by the Board that addresses water quality protection.

A permit from DNR is required for any timber harvest on forestlands in the state meeting certain criteria. DNR reviews and conditions approximately 12,000 permits annually across the state. They regularly inspect operations and enforce all rules related to forest practices. Ecology takes enforcement action if the violation results in a discharge to a water body. The two agencies coordinate their enforcement actions directly through each regional office.

The forest practices laws and regulations are intended to be fully sufficient to manage forest management on State and private forest lands. Although other laws, such as the State Environmental Policy Act (Chapter 43.21C RCW), Hazardous Waste Management Act (Chapter 70.105 RCW), Shoreline Management Act (Chapter 90.58), and Water Pollution Control Act (Chapter 90.48 RCW), also may have jurisdiction over certain activities of the forestry industry, deference is generally given to the Forest Practices Act. The requirements of the act are sufficient to the implementation of the management measures. Therefore, additional laws will not be presented in this section. Regulations are presented in this section as paraphrase, but for exact language, the WAC itself should be consulted.

The Forest Practices Act is an important law specifically designed to regulate activities that are nonpoint in nature. The act has enabled the Forest Practices Board to pass a series of enforced rules and regulations making for one of the most comprehensive sets of forest practices in the country. The Board has updated forest practices steadily since the adoption of environmental protection aspects of the Forest Practices Act in 1974. The forest practices rule packages of 1987, 1992, and the most recently completed

negotiations commonly known as the "Forests and Fish" report (F&F), were all designed specifically to improve permitted forest practices relating to fish habitat and water quality protection.

NONPOINT POLLUTION ASSOCIATED WITH FOREST PRACTICES

The effects of forest practices on water quality are well documented, but information on individual stream segments is not readily available. With the exception of the Nooksack Basin near Bellingham and the White River near Enumclaw, few recent water quality studies have concentrated on forested areas, although improper forest practices have been shown to degrade water quality in downstream receiving waters. Increased sedimentation and water temperatures are the greatest areas of concern, particularly as they relate to fish listed under ESA. Loss of wood in stream channels has resulted in degraded water quality and habitat.

Forest practices with the greatest potential effects on water quality include road construction, maintenance, and timber harvesting activities adjacent to and within streams. Other sources of water pollution are road wash, erosion of exposed soils, gully erosion from inadequate drainage controls, stream bank disturbance, and mass soil failures triggered by these practices. The ability of sensitive sites, such as forested wetlands, to regenerate is a concern in some cases. Slash burning can produce large amounts of ash and release nutrients that can be carried to streams.

The need to improve Washington's forestry program to protect water quality and beneficial uses has been documented by federal and State agencies. According to Ecology's 303(d) lists and Section 305(b) water quality assessments, many waters in the coastal zone are not meeting water quality standards, largely or wholly due to forest practices. The Timber, Fish, and Wildlife Cooperative Monitoring and Research Committee has completed several studies, described below, on the effectiveness of Washington's Forest Practice Rules. These studies have concluded that the rules are often ineffective in meeting water quality standards or protecting beneficial uses. For example, inadequate riparian width prescriptions have resulted in detrimental changes in the temperature regime of streams, and streamside management zones are not wide enough to prevent water quality standard violations due to aerial applications of pesticides.

In October 1996, DNR completed an Environmental Impact Statement (EIS) on a 1.63 million acre Habitat Conservation Plan which included about 133,500 acres of riparian habitat on State-owned timber lands in western Washington. The EIS found that riparian management zone widths under Washington Forest Practice Rules are insufficient to fully protect riparian ecosystems, particularly on Type 3 and 4 waters (small non-fish bearing streams). It also found that the "lack of a comprehensive road management plan" under current practices could "result in high road densities and consequent sediment runoff." Several studies (Cedarholm and Reid, 1987 and Schlichte et al., 1991) in two DNR drainages indicates that roads are a significant source of sediment that reaches streams.

Another published analysis of the effectiveness of the Washington Forest Practices Rules in protecting riparian ecosystems is the <u>Forestry Impacts on Freshwater Habitat of Anadramous Salmonids in the Pacific Northwest--Requirements for Protection and Restoration</u> (Murphy, 1995). In Chapter 8, the author presents a comparative analysis of several states and federal forest management rules, and concludes that several deficiencies exist in Washington's rules. Shade requirements for non-fish perennial streams may be inadequate because timber harvest does not necessarily maintain sufficient natural vegetation. Long-term recruitment of large woody debris is expected to be substantially below amounts present in mature conifer stands. Buffers for small non-fish streams appear to be minimal or inadequate for sediment protection.

In a memorandum (February 20, 1997) to EPA, Region 10, the Northwest office of the National Marine Fisheries Service (NMFS) concluded that the management of industrial forest lands conducted under the current Forest Practices Act (Chapter 76.09 RCW) is generally inadequate to protect riparian ecosystems and their anadramous salmonids to meet Endangered Species Act (ESA) requirements.

In summary, current practices are not sufficient to address water quality and beneficial uses. In particular, the beneficial uses of salmon breeding and habitat are adversely affected by detrital inputs, water temperature, stream bank stability, sediment loading and inadequate large woody debris recruitment. Section 6217 states that when implementation of the (g) measures alone are not adequate to achieve and maintain applicable water quality standards and protect beneficial uses, the State must identify and implement additional management measures. Thus, Washington will need to adopt additional management measures for forestry.

1998 FINDING BY NOAA AND EPA

EPA and NOAA reviewed Ecology's submittal in 1995 and had the following response to the description of the Forest Practices Program in Washington State:

Finding:

Washington's program includes management measures in conformity with the 6217(g) guidance and enforceable policies and mechanisms to ensure implementation throughout the 6217 management area. However, additional management measures are necessary to attain and maintain water quality standards and protect beneficial uses.

Rationale:

The existing State authority to regulate forestry (the Washington Forest Practices Act--FPA, chapter 76.09 RCW) is a comprehensive, enforceable program that includes management measures in conformity with the 6217(g) guidance. Any operator conducting a forest operation must comply with the FPA and implementing rules.

Although Washington has the basic legal and programmatic tools to implement a forestry program in conformity with Section 6217, these tools have not been fully effective in ensuring that water quality standards are attained and maintained and beneficial uses protected. Washington waters currently experience significant impacts from forestry: for example, increased temperature, fine sediment deposition, insufficient recruitment of large woody debris, stream bank instability and water quality standard violations for pesticides. Washington has a number of species, in particular salmon, that are endangered, threatened, or otherwise seriously at risk due in significant part to forestry activities that impair coastal water quality and beneficial uses, including salmon spawning, breeding, and rearing habitat.

Section 6217 recognizes that implementation of the (g) measures alone may not always be adequate to protect coastal waters from nonpoint sources of pollution. In these cases, Section 6217 requires the identification and implementation of additional management measures. Thus, Washington will need to adopt additional management measures for forestry in areas adjacent to

coastal waters not attaining or maintaining applicable water quality standards or protecting beneficial uses, or that are threatened by reasonably foreseeable increases in pollutant loadings from new or expanding forestry operations. (See section XI, page 12). Some of the waterbodies may not currently meet water quality standards due to historical rather than current practices. This fact will be considered in the development and evaluation of additional management measures. In addition, NOAA and EPA recognize that there are currently on-going discussions within the State concerning upgrading forest practices that may impact the development and identification of additional management measures.

EFFORTS TO IMPROVE FOREST PRACTICES PROGRAMS IN WASHINGTON

In the conditional approval to the CZARA 6217 submission, EPA and NOAA approved Washington's Forestry Management Measures. These include the following:

- 1. Preharvest Planning
- 2. Streamside Management Areas
- 3. Road Construction
- 4. Road Management
- 5. Timber Harvesting
- 6. Site Preparation*
- 7. Fire Management*
- 8. Re-vegetating Disturbed Areas*
- 9. Forest Chemicals
- 10. Forest Wetlands*

In addition to complying with these management measures, EPA and NOAA required the State to identify additional management measures for forestry to meet water quality standards and fish needs.

Washington believes that no additional management measures are needed for the items shown with an "*". The future development work to improve the program will focus on the management measures for:

- Preharvest Planning,
- Streamside Management Areas,
- Road Construction,
- Road Management,
- Timber Harvesting, and
- Forest Chemicals.

The following processes will be used to meet the additional management measure requirements in the findings for the areas listed above, as well as meeting other state-identified needs.

Forest and Fish Report and Legislation

Forest management in Washington is currently undergoing a major overhaul to bring the program into compliance with the Clean Water and Endangered Species Acts. Though the current regulatory structure is one of the most restrictive in the country, field data indicated a need for refinement of controls on forestry activities.

One outcome of this effort is the "Forests and Fish Report" (F&F). It is the result of over 18 months of negotiations between small and large landowners, many treaty tribes, federal, and State agencies, and counties. The report is an integral element of the State's Salmon Recovery Plan focusing on habitat needs for salmon in forested areas across the state. The F&F also provided a basis for meeting CWA 303(d) obligations on forest lands for the first 10 years of implementation. Progress toward water quality will be re-

evaluated at that time to determine the need for development of TMDLs. The report includes a commitment to complete TMDLs if needed.

It is the State's intent that the practices in the Forests and Fish Report meet the conditions of salmon recovery and water quality. House Bill 2091 in the 1999 session of the Washington Legislature adopted the findings of the report. The legislature provided approximately \$4.5 million in funding for implementation. In addition, the Salmon Recovery Funding Board has allocated \$4.0 million for agencies to implement provisions of ESHB 2091.

Additional state and federal funding for small landowner assistance is still under discussion. The F&F report outlines a program of incentives needed to assist small landowners by providing partial compensation for the lost economic opportunity in the riparian "leave" areas. A supplemental budget request is being prepared for the 2000 legislature that, if approved, will provide compensation for small landowners for lost opportunities associated with the F&F rules.

Since a funding package could not be arranged during the 1999 legislative session, landowners with less than 20 acres of timber land are currently exempted by ESHB 2091 from the F&F rules for riparian protection. All other landowners are expected to comply with the F&F rules. The emergency rules to begin implementing F&F will be adopted in January, 2000. They will require landowners with less than 20 acres to provide riparian protection that exceeds the current rules by approximately 15 percent.

The National Marine Fisheries Service (NMFS) and EPA are participating in the development of the implementing rules described in the Fish and Forest Report. NMFS has included these provisions in their 4(d) rule for salmon released on December 15, 1999. EPA is still considering the assurances provided in the ESHB 2091 and F&F and how they will lead to agreements on the CWA.

ESHB 2091 directs the Forest Practices Board to pass emergency rules to implement the F&F immediately. Emergency rules are currently scheduled for adoption in January, 1999. ESHB 2091 also directs the FPB to have final rules adopted by June 2001. An EIS is currently being written that evaluates the F&F findings and a public review will take place after the EIS is completed. The permanent rules will be adopted and implemented within the next five year scope of this current Nonpoint Source Management Plan.

The State's salmon recovery strategy includes a component for improving water quality and habitat through more environmentally advanced forest practices. Recommendations to implement these forest practices are found in the "Forests and Fish Report." The Forest Practices Board has adopted the report as its preferred alternative as it analyzes options for rule changes to meet CWA and ESA needs. Recommendations in this report suggest the following changes be made in the forest practices rules (Title 222 WAC):

Riparian Management Areas will be widened to as much as 200 feet:

Riparian Management Areas (RMAs) will now be based on the potential tree height of the surrounding forest. Harvest will be prohibited within 50 feet adjacent to either side of a stream. Limited harvest will be allowed from 50 feet to the outer limit of the riparian area, as determined by the potential tree height. Yarding methods in RMAS should be modified to protect streams and stream corridors.

Harvest on Unstable Slopes will require a thorough environmental review:

These harvests will be considered Class IV-Special harvests. Review under the State Environmental Policy Act (SEPA) will be required for the specific harvest. Based on the SEPA review, DNR may require the development of an Environmental Impact Statement; mitigation for sedimentation, mass wasting, or other adverse environmental effects; and/or deny the harvest application.

Road Maintenance and Abandonment:

Five-year Road Maintenance and Abandonment Plans will be prepared and implemented by landowners. Plans will inventory and assess roads and identify roads that need routine or ongoing maintenance, repair, or abandonment. Each year, landowners will submit specific plans for maintenance or abandonment of at least 20 percent of the roads on their property.

Watershed Analysis updates:

Emergency and permanent rules will adopt changes to watershed analysis including the following:

- The modules for riparian and roads will be modified to maintain the assessment phase but to eliminate the need for prescriptions.
- New modules for restoration, monitoring and cultural resources will be cooperatively developed.
- Landowners who are renewing their watershed analyses will only be required to address the modules used in the original analysis.
- The Water Quality Module will be upgraded to meet Clean Water Act requirements.
- The Hydrology and Fish modules will be revised and updated to address process improvements, technical upgrades and bull trout.
- The new regulations for riparian management zones will supercede existing watershed analysis prescriptions. Existing road plans will be upgraded to meet new requirements.
- DNR may issue 5 year permits for areas covered in a watershed analysis.
- DNR will not make a determination of significance in their SEPA threshold decision on watershed analyses unless the rules or prescriptions will cause probable significant adverse impacts.

Additional protections suggested include:

- additional drift control in aerial application of pesticides
- additional provisions to safeguard wetlands and other environmentally sensitive sites (e.g. unstable slopes and seeps)

The report also suggests certain administrative changes:

- provision for the development of alternate harvest and forest management plans
- special conditions for small forest landowners
- issuance of multi-year permits
- more targeted and effective enforcement
- use of adaptive management
- targeting of research to address management issues
- adding a representative from the WDFW to the Forest Practices Board
- establishment of an office for small landowners for assistance
- establishment of an easement program for small landowners

Salmon Recovery Plan - Early Actions

The F&F and ESHB 2091 are key components to the state's Salmon Recovery Efforts. The following "early" actions are commitments for the FY1999-2001 time period from the Joint Natural Resources Cabinet. They constitute the first two years of implementation activities submitted to NMFS and are designed to address salmon recovery needs. In addition, these actions provide important commitments to improving water quality and cleaning up nonpoint source pollution from forest management.

- Implement recommendations in the Forests and Fish Report, adopting and enforcing appropriate regulations
- Develop and implement recommendations on integration of the Forest Practices permits and Hydraulic permits to implement the requirements of Chapter 247, Laws of 1999 (ESESHB 2091)
- Conduct effectiveness monitoring to support the Forests and Fish Report recommendations
- Complete Habitat Conservation Plan on forestry module
- Update watershed analysis manual, facilitate conducting watershed analyses and approve watershed analysis permits
- Review and approve road maintenance and abandonment plans
- Carry out functions of the Small Forest Landowners' Office
- Enhance statewide monitoring of rate of harvest, riparian zone management, etc. consistent with the Forests and Fish Report
- Complete water typing projects and GIS mapping and data management upgrade.

Other actions to improve the forestry program

- Finalize the MOA between USFS and Ecology to address water quality compliance
- Approve transfer of Class IV general forest practices permits to local governments
- Educate small forest landowners on water quality and ESA issues, and new rules
- Investigate a comprehensive stormwater control process that involves purchase of development rights from small forest landowners in urban growth areas.
- Establish a State policy to allow timber leases for conservation purposes.

<u>Forestry Management Measure Number IIA</u>: Preharvest Planning

Description from Federal Guidance

Perform advance planning for forest harvesting that includes the following elements where appropriate:

- 1. Identify the area to be harvested including location of water bodies and sensitive areas such as wetlands, threatened or endangered aquatic species habitat areas, or higherosion-hazard areas (landslide-prone areas) within the harvest unit.
- 2. Time the activity for the season or moisture conditions when the least impact occurs.
- 3. Consider potential water quality impacts, and erosion and sediment control in the selection of silvicultural and regeneration systems, especially for harvesting and site preparation.
- 4. Reduce the risk of occurrence of landslides and severe erosion by identifying higherosion-hazard areas and avoiding harvesting in such areas.
- 5. Consider additional contributions from harvesting or roads to any known existing water quality impairments or problems in watersheds of concern.

Perform advance planning for forest road systems that includes the following elements where appropriate:

- 1. Locate and design road systems to minimize, to the extent practicable, potential sediment generation and delivery to surface waters. Key components are:
 - locating roads, landings, and skid trails to avoid steep grades and steep hillslope areas, and to decrease the number of stream crossings;
 - · avoiding locating new roads and landings in Streamside Management Areas; and
 - determining road usage and selecting the appropriate road standard.
- 2. Locate and design temporary and permanent stream crossings to prevent failure and control impacts from the road system. Key components are: (a) size and site crossing structures to prevent failure and (b) design crossings to facilitate fish passage.
- 3. Ensure that the design of road prism and surface drainage is appropriate to the terrain and that road surface design is consistent with the road drainage structures.
- 4. Use suitable materials to surface roads planned for all-weather and truck traffic.
- 5. Design road systems to avoid high erosion or landslide hazard areas. Identify these areas and consult a qualified specialist for design of any roads that must be constructed through these areas.

Each state should develop a process (or utilize an existing process) that ensures that the management measures in this chapter are implemented. This should include appropriate notification, compliance audits, or other mechanisms for forestry activities with the potential for significant adverse nonpoint source effects based on the type and size of operation and the presence of stream crossings or SMAs.

1998 Finding from EPA and NOAA

"Washington's program includes management measures in conformity with the 6217(g) guidance and enforceable policies and mechanisms to ensure implementation throughout the 6217 management area. However, additional management measures are necessary to attain and maintain water quality standards and protect beneficial uses."

Existing Statute(s) and Regulations

Forest Practices Act (Chapter 76.09.040 RCW) Chapter 222-24 WAC, Road Construction and Maintenance Chapter 222-30 WAC, Timber Harvesting

Description of Current Programs in Washington

The requirements for advance planning of a proposed timber harvest can be found in WAC 222-30-020: Harvest Unit Planning and Design:

- Plans are to be appropriate to the terrain and conditions of the harvest area to minimize environmental impacts that can be economically accomplished. Landings should be located so as to not impact water bodies within the harvest area.
- Landings should be constructed with minimum excavation necessary and, in areas of steep slopes, fill may not contain stumps or other debris.
- Landings should also be constructed so as to drain water properly back onto the forest floor.
- Excavation material should not be sidecast within the 50-year floodplain of major streams.

The requirements for road planning can be found in WAC 222-24-020 Road Location and WAC 222-24-025 Road Design. These regulations require that roads:

- avoid water bodies, wetlands, canyons, and steep slopes
- · minimize stream crossings, and cross streams perpendicular to the flow
- minimize excess excavation materials
- provide outsloping or ditching on the uphill side of the road, with frequent drains across the road to minimize sediment delivery
- if ditches slope to a major stream, water should be diverted to the forest floor for absorption

The Department of Natural Resources enforces these rules by requiring a permit prior to timber harvest, inspecting harvest sites, and taking enforcement action as required. In addition, if a water quality violation occurs from a discharge from a forest road, Ecology may also take enforcement action.

Additional needs to meet this management measure

The requirements for timber harvest and road construction need to be updated to provide improved water quality and fish habitat protection.

Actions to satisfy this management measure

Additional Management Measure: The Forest Practices Board will implement ESHB 2091 incorporating into rule the findings of the Fish and Forest Report related to pre-harvest planning, specifically as it relates to roads and harvest unit layout.

<u>Forestry Management Measure Number IIB</u>: Streamside Management Areas (SMAs)

Description from Federal Guidance

Establish and maintain a streamside management area along surface waters which is sufficiently wide and which includes a sufficient number of canopy species to buffer against detrimental changes in the temperature regime of the water body, to provide bank stability, and to withstand wind damage. Manage the Streamside Management Area in such a way as to protect against soil disturbance in the Streamside Management Area and delivery to the stream of sediments and nutrients generated by forestry activities, including harvesting. Manage the Streamside Management Area canopy species to provide a sustainable source of large woody debris needed for instream channel structure and aquatic habitat.

1998 Finding from EPA and NOAA

"Washington's program includes management measures in conformity with the 6217(g) guidance and enforceable policies and mechanisms to ensure implementation throughout the 6217 management area. However, additional management measures are necessary to attain and maintain water quality standards and protect beneficial uses."

Existing Statute(s) and Regulations

Forest Practices Act (Chapter 76.09.040 RCW) Chapter 222-30 WAC, Timber Harvesting

Description of Current Programs in Washington

Riparian management zones are established in Chapter 222-30 WAC, Timber Harvesting. The purpose of these zones is stated in WAC 222-30-010:

"The riparian management zone requirements specified in this section are designed to provide protection for water quality and fisheries and wildlife habitat through ensuring present and future supplies of large organic debris for streams, snags, canopy cover, and a multistoried diverse forest adjacent to Type 1, 2 and 3 Waters."

WAC 222-30-020 (3) & (4) establish these requirements for the management of "riparian management zones" which are the same as streamside management zones described in this management measure. Subsection (3) establishes the requirements for harvests in western Washington, subsection (4) for eastern Washington. These regulations specify a minimum and maximum riparian buffer width, and number, size and types of trees to be left unharvested in order to protect the water quality and habitat for all permanent flowing streams in the harvest area. The specifics of these parameters are factors such as location of harvest, size of harvest, and size of streams present. Smaller flowing waters with

gradients greater than 20 percent may also have required riparian zones on a case by case basis. Locations and descriptions of riparian zones must be submitted as part of the permit application. Enforcement of the riparian zone standards can be initiated by either DNR or Ecology.

Additional needs to meet this management measure

The requirements for riparian area protection need to be updated to provide improved water quality and fish habitat protection.

Actions to satisfy this management measure

Additional Management Measure: The Forest Practices Board will implement ESHB 2091 incorporating into rule the findings of the Fish and Forest Report related specifically to riparian management (SMAs).

Forestry Management Measure Number IIC: Road Construction

Description from Federal Guidance

- 1. Follow preharvest planning (as described under Management Measure A) when constructing or reconstructing the roadway.
- 2. Follow designs planned under Management Measure A for road surfacing and shaping.
- 3. Install road drainage structures according to designs planned under Management Measure A and regional storm return period and installation specifications. Match these drainage structures with terrain features and with road surface and prism designs.
- 4. Guard against the production of sediment when installing stream crossings.
- 5. Protect surface waters from slash and debris material from roadway clearing.
- 6. Use straw bales, silt fences, mulching, or other favorable practices on disturbed soils on unstable cuts, fills, etc.
- 7. Avoid constructing new roads in SMAs to the extent practicable.

1998 Finding from EPA and NOAA

"Washington's program includes management measures in conformity with the 6217(g) guidance and enforceable policies and mechanisms to ensure implementation throughout the 6217 management area. However, additional management measures are necessary to attain and maintain water quality standards and protect beneficial uses."

Existing Statute(s) and Regulations

Forest Practices Act (Chapter 76.09.040 RCW) Chapter 222-24 WAC, Road Construction and Maintenance

Description of Current Programs in Washington

The following sections in Chapter 222-24 WAC, Road Construction and Maintenance implement this management measure:

-020: Road Location:

- avoid water bodies, wetlands, canyons, and steep slopes
- minimize stream crossings, and cross streams perpendicular

-025: Road Design

- minimize excess excavation materials
- provide outsloping or ditching on the uphill side of the road, with frequent drains across the road to minimize sediment delivery
- if ditches slope to a major stream, water should be diverted to the forest floor for absorption

-030: Road Construction

- compact road fill, including limiting debris in fill
- stabilize soils exposed by construction
- construct roads during times and climatic conditions to minimize erosion

-035: Landing Location and Construction

- locate so as to preserve resources
- keep size as small as possible
- construct with minimum excavation in areas of steep slopes, fill may not contain stumps or other debris.

-040: Water Crossing Structures

- bridges: higher than 50 year flood, approaches must be protected from erosion during high water
- culverts: carry 50 year flood, outfall must be hardened, minimum culvert size established according to type of fish present
- culverts in anadromous fish streams: must be installed 6" below stream bed with bottom covered with gravel, and normal stream flow maintained
- temporary crossings: summertime only, must be removed by September 30 (western Washington) or snow buildup (eastern Washington)

These regulations are enforced by both Ecology and DNR.

Additional needs to meet this management measure

The requirements for road construction need to be updated to provide improved water quality and fish habitat protection.

Actions to satisfy this management measure

Additional Management Measure: The Forest Practices Board will implement ESHB 2091 incorporating into rule the findings of the Fish and Forest Report related specifically to road construction.

<u>Forestry Management Measure Number IID</u>: Road Management

Description from Federal Guidance

- 1. Avoid using roads where possible for timber hauling or heavy traffic during wet or thaw periods on roads not designed and constructed for these conditions.
- 2. Evaluate the future need for a road and close roads that will not be needed. Leave closed roads and drainage channels in a stable condition to withstand storms.
- 3. Remove drainage crossings and culverts if there is a reasonable risk of plugging or failure from lack of maintenance.
- Following completion of harvesting, close and stabilize temporary spur roads and seasonal roads to control and direct water away from the roadway. Remove all temporary stream crossings.
- 5. Inspect roads to determine the need for structural maintenance. Conduct maintenance practices, when conditions warrant, including cleaning and replacement of deteriorated structures and erosion controls, grading or seeding of road surfaces, and, in extreme cases, slope stabilization or removal of road fills where necessary to maintain structural integrity.
- 6. Conduct maintenance activities, such as dust abatement, so that chemical contaminants or pollutants are not introduced into surface waters to the extent practicable.
- 7. Properly maintain permanent stream crossings and associated fills and approaches to reduce the likelihood (a) that stream overflow will divert onto roads, and (b) that fill erosion will occur if the drainage structures become obstructed.

1998 Finding from EPA and NOAA

"Washington's program includes management measures in conformity with the 6217(g) guidance and enforceable policies and mechanisms to ensure implementation throughout the 6217 management area. However, additional management measures are necessary to attain and maintain water quality standards and protect beneficial uses."

Existing Statute(s) and Regulations

Forest Practices Act (Chapter 76.09.040 RCW) Chapter 222-24 WAC, Road Construction and Maintenance

Description of Current Programs in Washington

WAC 222-24-050: Road Maintenance contains road management requirements, road abandonment procedures, culvert maintenance, brush control and road surface treatments. Landowners may also be required to submit road maintenance plans in cases where water quality or other public resources are threatened. Plans must be designed and implemented to remove the threat to public resources and reviewed annually by DNR. Under existing emergency rules, road maintenance and abandonment plans are required for certain forest practices within geographic areas with ESA listed fish. These regulations are enforced by both Ecology and DNR.

Additional needs to meet this management measure

The requirements for road maintenance need to be updated to provide improved water quality and fish habitat protection.

Actions to satisfy this management measure

Additional Management Measure: The Forest Practices Board will implement ESHB 2091 incorporating into rule the findings of the Fish and Forest Report related specifically to road maintenance programs.

<u>Forestry Management Measure Number IIE:</u> Timber Harvesting

Description from Federal Guidance

The timber harvesting management measure consists of implementing the following:

- 1. Timber harvesting operations with skid trails or cable yarding follow layouts determined under Management Measure A.
- 2. Install landing drainage structures to avoid sedimentation to the extent practicable. Disperse landing drainage over sideslopes.
- Construct landings away from steep slopes and reduce the likelihood of fill slope failures. Protect landing surfaces used during wet periods. Locate landings outside of SMAs.
- 4. Protect stream channels and significant ephemeral drainages from logging debris and slash material.
- 5. Use appropriate areas for petroleum storage, draining, dispensing. Establish procedures to contain and treat spills. Recycle or properly dispose of all waste materials.

For cable yarding:

- 1. Limit yarding corridor gouge or soil plowing by properly locating cable yarding landings.
- 2. Locate corridors for SMAs following Management Measure B.

For groundskidding:

- 1. Within SMAs, operate groundskidding equipment only at stream crossings to the extent practicable. In SMAs, fell and endline trees to avoid sedimentation.
- 2. Use improved stream crossings for skid trails which cross flowing drainages. Construct skid trails to disperse runoff and with adequate drainage structures.
- 3. On steep slopes, use cable systems rather than groundskidding where groundskidding may cause excessive sedimentation.

1998 Finding from EPA and NOAA

"Washington's program includes management measures in conformity with the 6217(g) guidance and enforceable policies and mechanisms to ensure implementation throughout the 6217 management area. However, additional management measures are necessary to attain and maintain water quality standards and protect beneficial uses."

Existing Statute(s) and Regulations

Forest Practices Act (Chapter 76.09.040 RCW) Chapter 222-24 WAC, Road Construction and Maintenance Chapter 222-30 WAC, Timber Harvesting

Shoreline Management Act (Chapter 90.58.150 RCW)

Description of Current Programs in Washington

The following section of Chapter 222-24 WAC, Road Construction and Maintenance apply to the implementation of this management measure:

-035: Landing Location and Construction

- locate so as to preserve resources
- keep size as small as possible
- construct with minimum excavation in areas of steep slopes, fill may not contain stumps or other debris.

The following sections of Chapter 222-30 WAC, Timber Harvest apply to the implementation of this management measure:

-020: Harvest Unit Planning and Design

- establishes overall guidance for locations of roads and landings
- establishes standards for riparian management zones, wetlands management zones, sets sizes for these zones and limits harvest within the zones
- establishes harvest limits to protect wildlife habitat

-025: Even-aged Harvesting

 provides that harvest units be designed so that trees harvested have a diversity of age representative of the forest from which they are taken

-030: Stream Bank Integrity

- provides that disturbance of trees and shrubs embedded in streambanks should be avoided
- provides that precautions should be taken so that felled trees do not enter the waters of streams in the harvest area

-040: Shade Requirements to Maintain Stream Temperature

• limits harvest in riparian areas so that sufficient shade continues after harvest to maintain stream temperature

-050: Felling and Bucking

- if unavoidable, the felling of trees into certain waters is allowed, if a hydraulic permit under Chapter 79.20 RCW is first obtained
- bucking of trees is to be limited to areas outside the riparian management zone, wetlands management zone, and within the harvest unit

-060: Cable Yarding

- cable yarding is limited in riparian zones and wetlands, and all yarding in these areas is to have prior approval by the state
- cable yarding is preferred in an uphill direction
- harvested trees should not be allowed to roll into or otherwise disturb streams and streambanks in the harvest unit

-070: Tractors and Wheeled Skidding Systems

- state approval is required for use of these systems in riparian zones and wetlands
- skidding damage to residual timber should be avoided
- skid trails should be of minimum width, not placed on steep slopes, and water barred at the end of any seasonal use
- ground based equipment use is limited during wet soil conditions

-080: Landing Cleanup

- clean up within 60 days of end of operation
- water drainages to be cleared of all obstructions
- exposed soils seeded in grass, clover or other ground cover
- all metal or inorganic debris from harvest operation to be removed

-110: Timber Harvesting on Islands

- limits harvest unit to 40 acres
- future harvest prohibited until 10 years after reforestation of previous harvest for each landowner

In addition, the Shoreline Management Act limits the amount of timber that can be harvested from a forested area adjacent to a Shoreline of Statewide Significance. Only selective harvesting techniques are allowed and no more than 30 percent of the merchantable trees can be removed in any 10-year period. These regulations are enforced by both Ecology and DNR.

Additional needs to meet this management measure

None

Actions to satisfy this management measure

Adequate programs exist to meet this management measure and no additional requirements are needed.

Forestry Management Measure Number IIF: Site Preparation

Description from Federal Guidance

Confine on-site potential NPS pollution and erosion resulting from site preparation and the regeneration of forest stands. The components of the management measure for site preparation and regeneration are:

- 1. Select a method of site preparation and regeneration suitable for the site conditions.
- 2. Conduct mechanical tree planting and ground-disturbing site preparation activities on the contour of sloping terrain.
- 3. Do not conduct mechanical site preparation and mechanical tree planting in streamside management areas.
- 4. Protect surface waters from logging debris and slash material.
- 5. Suspend operations during wet periods if equipment used begins to cause excessive soil disturbance that will increase erosion.
- 6. Locate windrows at a safe distance from drainages and SMAs to control movement of the material during high runoff conditions.
- 7. Conduct bedding operations in high-water-table areas during dry periods of the year. Conduct bedding in sloping areas on the contour.
- 8. Protect small ephemeral drainages when conducting mechanical tree planting.

"1998 Finding from EPA and NOAA

Washington's program includes management measures in conformity with the 6217(g) guidance and enforceable policies and mechanisms to ensure implementation throughout the 6217 management area. However, additional management measures are necessary to attain and maintain water quality standards and protect beneficial uses."

Existing Statute(s) and Regulations

Forest Practices Act (Chapter 76.09.040 RCW) Chapter 222-30 WAC, Timber Harvesting Chapter 222-34 WAC, Reforestation

Description of Current Programs in Washington

The following sections of Chapter 222-30 WAC, Timber Harvest apply to the implementation of this management measure:

-090: Post-harvest Site Preparation

- harvest site to be left in a condition suitable for reforestation, except under certain conditions
- competing vegetation must be slashed, except in riparian and wetlands zones
- slash may be piled, windrowed or mechanically scattered
- harvest site may have a controlled broadcast burn in lieu of slash

-100: Slash Disposal or Prescribed Burning

- slash disposal methods listed,
- slash disposal limited in riparian areas and wetlands
- slash burning requires permit
- slash reduction may be required if fire hazard present
- all slash should be removed below 50 year flood level for streams in the harvest area
- fire trails should be of minimum size, have installed erosion control, not be located below the 50 year flood level
- fire trails in riparian areas and wetlands require state approval

In addition, WAC 222-34-040:

- limits the use of heavy equipment in site preparation for reforestation to reduce sediment delivery to adjacent water bodies
- limits design and construction of ditches and drainages so as to not cause siltation, adversely affect any water right, or cause any damage or instability of either stream or stream banks downstream of the harvest unit

These regulations are enforced by both Ecology and DNR.

Additional needs to meet this management measure

None.

Actions to satisfy this management measure

Adequate programs exist to meet this management measure and no additional requirements are needed.

<u>Forestry Management Measure Number IIG:</u> Fire Management

Description from Federal Guidance

Prescribe fire for site preparation and control or suppress wildfire in a manner which reduces potential nonpoint source pollution of surface waters:

- 1. Intense prescribed fire should not cause excessive sedimentation due to the combined effect of removal of canopy species and the loss of soil-binding ability of subcanopy and herbaceous vegetation roots, especially in SMAs, in streamside vegetation for small ephemeral drainages, or on very steep slopes.
- 2. Prescriptions for prescribed fire should protect against excessive erosion or sedimentation to the extent practicable.
- All bladed firelines, for prescribed fire and wildfire, should be plowed on contour or stabilized with water bars and/or other appropriate techniques if needed to control excessive sedimentation or erosion of the fireline.
- Wildfire suppression and rehabilitation should consider possible NPS pollution of watercourses, while recognizing the safety and operational priorities of fighting wildfires.

1998 Finding from EPA and NOAA

"Washington's program includes management measures in conformity with the 6217(g) guidance and enforceable policies and mechanisms to ensure implementation throughout the 6217 management area. However, additional management measures are necessary to attain and maintain water quality standards and protect beneficial uses."

Existing Statute(s) and Regulations

Forest Practices Act (Chapter 76.09.040 RCW) Chapter 222-30 WAC, Timber Harvesting

Description of Current Programs in Washington

WAC 222-30-100 provides standards for prescribed burning and the construction and maintenance of fire trails. Requirements in this section include:

- slash burning requires permit
- slash reduction may be required if fire hazard present
- fire trails should be of minimum size, have installed erosion control, and not be located below the 50 year flood level
- fire trails in riparian areas and wetlands require state approval

Additional needs to meet this management measure

None.

Actions to satisfy this management measure

Adequate programs exist to meet this management measure and no additional requirements are needed.

<u>Forestry Management Measure Number IIH:</u> Revegetating Disturbed Areas

Description from Federal Guidance

Reduce erosion and sedimentation by rapid revegetation of areas disturbed by harvesting operations or road construction:

- 1. Revegetate disturbed areas (using seeding or planting) promptly after completion of the earth-disturbing activity. Local growing conditions will dictate the timing for establishment of vegetative cover.
- 2. Use mixes of species and treatments developed and tailored for successful vegetation establishment for the region or area.
- 3. Concentrate revegetation efforts initially on priority areas such as disturbed areas in SMAs or the steepest areas of disturbance near drainages.

Existing Statute(s) and Regulations

Forest Practices Act (Chapter 76.09.040 RCW) Chapter 222-24 WAC, Road Construction and Maintenance Chapter 222-34 WAC, Reforestation

Description of Current Programs in Washington

The following section of Chapter 222-24 WAC, Road Construction and Maintenance, applies to this management measure:

-030: Road Construction

 unstable or erodible exposed soils associated with road construction must be seeded with grass, clover or other ground cover. Special care must be taken around wetlands to avoid introduction of non-native species.

The following sections of Chapter 222-34 WAC, Reforestation, apply to this management measure:

-010: Required Reforestation--West of Cascades Summit

- minimum of 190 seedlings per acre
- reforestation to occur within three years of harvest, up to ten years if harvest unit is part of a natural regeneration plan approved by DNR
- competing vegetation must be controlled to ensure survival of trees
- trees used in reforestation must be of the same types and distribution of those harvested

-020: Required Reforestation--East of Cascades Summit

- minimum of 150 seedlings per acre
- other requirements are the same as for western Washington in section -010

-030: Reforestation--Plans--Reports--Inspections

- reforestation plans to be submitted with harvest permit application
- reports to be submitted immediately and two years after reforestation
- DNR to inspect reforestation within 12 months of receipt of report
- supplemental plantings may be required

-050: Urban and Other Lands Exempted from the Reforestation Requirements

- lands declared by owner to be converted to urban uses
- utility rights of way
- public lands to be converted to other uses within 10 years

These regulations are enforced by both Ecology and DNR.

Additional needs to meet this management measure

None.

Actions to satisfy this management measure

Adequate programs exist to meet this management measure and no additional requirements are needed.

<u>Forestry Management Measure Number II-I:</u> Forest Chemicals

Description from Federal Guidance

Use chemicals when necessary for forest management in accordance with the following to reduce nonpoint source pollution impacts due to the movement of forest chemicals off-site during and after application:

- 1. Conduct applications by skilled and, where required, licensed applicators according to the registered use, with special consideration given to impacts to nearby surface waters.
- 2. Carefully prescribe the type and amount of pesticides appropriate for the insect, fungus, or herbaceous species.
- 3. Prior to applications of pesticides and fertilizers, inspect the mixing and loading process and the calibration of equipment, and identify the appropriate weather conditions, the spray area, and buffer areas for surface waters.
- 4. Establish and identify buffer areas for surface waters. (This is especially important for aerial applications.)
- 5. Immediately report accidental spills of pesticides or fertilizers into surface waters to the appropriate state agency. Develop an effective spill contingency plan to contain spills.

1998 Finding from EPA and NOAA

"Washington's program includes management measures in conformity with the 6217(g) guidance and enforceable policies and mechanisms to ensure implementation throughout the 6217 management area. However, additional management measures are necessary to attain and maintain water quality standards and protect beneficial uses."

Existing Statute(s) and Regulations

Forest Practices Act (Chapter 76.09.040 RCW) Chapter 222-38, Forest Chemicals

Description of Current Programs in Washington

The following sections of Chapter 222-38, Forest Chemicals, relate to the implementation of this management measure:

-010: Policy--Forest Chemicals

states purpose for regulations:

"The purpose of these regulations is to regulate the handling, storage and application of chemicals in such a way that the public health, lands, fish, wildlife, aquatic habitat, and water quality will not be endangered by contamination."

WSDA regulations not modified (see agricultural management measure IID)

-020: Handling, Storage, and Application of Pesticides

- · according to all other state and federal requirements
- "back siphoning" to be prevented
- hand application only in riparian areas and wetlands
- · buffers established for aerial spraying
- drift control required for aerial spraying
- daily reporting of aerial spraying required
- spills to be immediately reported to Ecology

-030: Handling, Storage and Application of Fertilizers

- spillage to water or wetlands to be prevented
- fertilizer spills to be immediately contained
- hand application only in riparian areas and wetlands
- buffers and drift control requirements established for aerial application
- spills entering waters to be immediately reported to Ecology

-040: Handling, Storage and Application of Other Forest Chemicals

- spillage to water or wetlands to be prevented
- spills to be immediately contained
- "back siphoning" to be prevented
- emergency use of fire retardants to control wildfire exempted

These regulations are enforced by both Ecology and DNR.

Additional needs to meet this management measure

New buffer width requirements that consider changing wind conditions are needed.

Actions to satisfy this management measure

Additional Management Measure: The Forest Practices Board will implement ESHB 2091 incorporating into rule the findings of the Fish and Forest Report related specifically to pesticide application.

Forestry Management Measure Number IIJ: Forested Wetlands

Description from Federal Guidance

Plan, operate, and manage normal, ongoing forestry activities (including harvesting, road design and construction, site preparation and regeneration, and chemical management) to adequately protect the aquatic functions of forested wetlands.

1998 Finding from EPA and NOAA

"Washington's program includes management measures in conformity with the 6217(g) guidance and enforceable policies and mechanisms to ensure implementation throughout the 6217 management area. However, additional management measures are necessary to attain and maintain water quality standards and protect beneficial uses."

Existing Statute(s) and Regulations

Forest Practices Act (Chapter 76.09.040 RCW) Chapter 222-30 WAC, Timber Harvesting

Description of Current Programs in Washington

As can be noted throughout the forestry management measures, more protective requirements exist for wetlands, such as:

Provisions Related to Wetlands in the Washington State Forest Practices Regulations

WAC 222-	Subject	Provision
24-020	Road Design	Roads must avoid wetlands
24-035	Landing Location	Landings cannot be located in wetlands
30-020	Harvest Unit Planning and	Establishes buffers for wetlands
	Design	Limits harvest in or near wetlands
30-050	Bucking and Felling	Bucking not allowed in wetlands
30-060	Cable Yarding	Requires state approval in wetlands
30-070	Tractors & Wheeled	Requires state approval in wetlands
	Skidding Systems	
30-090	Post-harvest Site Preparation	No slash in wetlands
30-100	Slash Disposal and	Fire trails prohibited in wetlands
	Prescribed Burning	-
38-020	Handling, Storage and	Mixing & storage in wetlands prohibited
	Application of Pesticides	Hand application only in wetlands
38-030	Handling, Storage, and	Storage in wetlands prohibited
	Application of Fertilizers	Hand application only in wetlands

These considerations are consistent with state policy as declared in WAC 222-30-010:

"Wetland areas serve several significant functions in addition to timber production: Providing fish and wildlife habitat, protecting water quality, moderating and preserving water quantity. Wetlands may also contain unique or rare ecological systems."

These regulations are enforced by both Ecology and DNR.

Additional needs to meet this management measure to meet this management measure

None.

Planned actions intended to implement management measures

Adequate programs exist to meet this management measure and no additional requirements are needed.

URBAN AREAS

Introduction

Pollution from urban areas is the most complex and difficult kind to control. This category, a combination of day-to-day workings of urban and rural activities, is divided into the four sub-categories for ease of evaluation:

- 1. Construction and Development (Stormwater Runoff)
- 2. On-Site Sewage Systems
- 3. Pollution Prevention contains sub-categories.
- 4. Land Transportation Systems

Each category will include a general description of the problems and programs as they exist in Washington, followed by an analysis of existing management measures.

Construction and Development (STORMWATER RUNOFF)

BACKGROUND

Natural vegetative cover once protected much of Washington's land by intercepting rainfall, reducing erosion, and recharging ground water. The trees and shrubs held much of the moisture, and the forest duff layer absorbed runoff, releasing it slowly and steadily to the streams.

Clearing for buildings, parking lots, and landscaped areas is now occurring at a rapid rate in Washington. Drainage patterns are forever changed. Rainfall runs quickly and directly into the streams, dramatically increasing their volume and peak flows.

When discharged through a pipe, stormwater is considered a point source of pollution. Historically, stormwater management has meant controlling water quantity, usually flood control of large storm events. In Washington State, EPA has delegated NPDES permitting and enforcement authority to Ecology. Ecology has jurisdiction over all industrial and municipal stormwater discharges within Washington, except discharges on federal and tribal lands.

It is now seen as important to manage the stormwater runoff from small storms as well, not only for the sake of flood control, but also for protection of water quality. It takes just a small amount of stormwater runoff to carry large amounts of soil and pollutants.

Stormwater quality tends to be extremely variable (USEPA 1983). The intensity of rainfall fluctuates dramatically, affecting runoff rate, pollutant washoff rate, in-channel flow rate, pollutant transport, sediment deposition and re-suspension, channel scour, and numerous other phenomena. As a result, pollutant concentrations and other stormwater characteristics at a given location should be expected to vary significantly during a single storm runoff event and from event to event. In addition, the transitory and unpredictable nature of many pollutant sources and release mechanisms (spills, leaks, dumping, construction, landscape, irrigation runoff, vehicle washing, etc.) and differences in the time interval between storm events also contribute to inter-storm variability (Woodward-Clyde, 1995).

Another problem with stormwater control is infiltration and inflow (I&I) in sewer systems. As improvements are made to the sewer systems to eliminate stormwater I&I, the stormwater is typically diverted to surface waters, often without any treatment. Stormwater I&I contributes to combined sewer overflows (CSOs) which pose a serious public health threat, particularly in shellfish growing areas.

One of the major problems currently facing Washington is the high growth rate experienced over the past decade. During the 1990's, about 130,000 people have moved to the state each year. Most of this growth originally centered in the urban districts

associated with metropolitan Puget Sound and Portland, Oregon. More recently, growth has spread throughout the state, with rates ranging from 0.3 percent annual growth in the rural southeastern part of the state to 5 percent annual growth in Clark County, across the Columbia River from Portland. The growth rate in Clark County is more than double the statewide rate of 2.3 percent.

During this period, local governments and citizens have focused much effort on maintaining the quality of life in their communities. For example, in 1991, only 14 of the state's 39 counties were fully planning under the GMA. By 1998, 29 counties, or almost twice that number, are fully planning, utilizing comprehensive plans and development regulations. These 29 counties hold more than 95 percent of the State's population. All 10 of the counties not fully planning under the act have growth rates lower than the State average and plan under the Washington State Planning Enabling Act (RCW 36.70).

SOURCE CONTROL STRATEGY FOR CONSTRUCTION AND DEVELOPMENT

Stormwater management is primarily related to land use. The regulation of land use is governed by:

- the State Environmental Policy Act (Chapter 43.21C RCW) with its related regulations in Chapter 197-11 WAC
- the Growth Management Act (Chapter 36.70A RCW)
- the Shoreline Management Act (Chapter 90.58 RCW) and its related guidelines in Chapter 173-26 WAC.

The relationship between these acts is discussed in Chapter three.

In addition, as with previous categories, if a discharge to the State's waters occurs as a result of activities in this subcategory, Ecology can take enforcement action under the Water Pollution Control Act (Chapter 90.48 RCW).

All construction, municipal and industrial areas greater than five acres must follow the requirements of the Construction General Permit when developing land. For stormwater, the requirements and Best Management Practices are established in the 1992 stormwater manual. This manual has been used statewide for the past seven years in reviewing stormwater plans.

Best Management Practices for all construction and development in the state will be established through the new statewide stormwater manual: "Stormwater Management in Washington State." The manual is currently under public review. All construction and development sites are required to prepare a plan demonstrating how the minimum requirements of the manual will be met. For projects with sites greater than one acre, or which will have more than 5000 square feet of impervious surface after the project is

finished, Ecology reviews the plan. For smaller projects, review of the plan is left to local governments. Ecology encourages local governments to verify compliance with the stormwater requirements in conjunction with the inspection that results in the Permit to Occupy. BMP implementation is also required in all municipal and construction general permits as well as individual industrial permits.

SEPA Checklist elements pertaining to these management measures

Impacts to water and land must be considered under the State Environmental Policy Act. The SEPA checklist provisions found in Part B: Environmental Elements address all or part of the requirements found in a number of the Urban management measures.

1. Earth

- a. General description of the site (circle one): Flat, rolling, hilly, steep slopes or mountains. Other:
- b. What is the steepest slope on the site (approximate percent slope)?
- c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck?) If you know the classification of agricultural soils, specify them and note any prime farmland.
- d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe:
- e. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source of fill.
- f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.
- g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?
- h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

2. Water

a. Surface

- 1. Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.
- 2. Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.
- 3. Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. In the source of the fill material.

- 4. Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities, if known.
- 5. Does the proposal lie within the 100 year floodplain? If so, note location on the site plan.
- 6. Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

b. Ground:

- 1. Will ground water be withdrawn, or will water be discharged to groundwater? Give general description, purpose, and approximate quantities, if known.
- 2. Describe waste materials that will be discharged into the ground from septic tanks or other sources, if any (for example: domestic sewage; industrial, containing the following chemicals; agricultural; etc.). Describe the general size of the system, the number such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.
- c. Water Runoff (including storm water)
 - Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known).
 Where will this water flow? Will this water flow into other waters? If so, describe
 - 2. Could waste material enter ground or surface waters? If so, generally describe.
- d. Proposed measures to reduce or control surface, ground, and runoff water impacts, if any:

3. Shoreline and Land Use

- a. What is the current use of the site and adjacent properties?
- b. Has the site been used for agriculture? If so, describe:
- c. Describe any structures on the site.
- d. Will any structures be demolished? If so, what?

- e. What is the current zoning classification of the site?
- f. What is the current comprehensive plan designation of the site?
- g. If applicable, what is the current shoreline master program designation for the site?
- h. Has any part of the site been classified as an "environmentally sensitive" area? If so, describe.
- i. Approximately how many people would reside or work in the completed project?
- j. Approximately how many people would the completed project displace?
- k. Proposed measures to avoid or reduce displacement impacts, if any:
- 1. Proposed measures to ensure the proposal is compatible with existing and projected land use and plans, if any.

NONPOINT POLLUTION ASSOCIATED WITH STORMWATER RUNOFF

Runoff may contain high concentrations of heavy metals, fecal contamination bacteria, silt, petroleum products, and nutrients. In the short term, these toxic pollutants can stress aquatic organisms, damage shellfish beds, and restrict water recreation. In the long term, accumulation of pollutants in receiving waters can create irreversible problems such as eutrophication of lakes, groundwater contamination, and contaminated sediments.

In addition to carrying pollutants, runoff can cause streambed scouring and erosion contributing to water quality degradation. Impermeable surfaces, such as roofs, parking lots, and paved streets, prevent rainfall from infiltrating the soil, creating sudden rushes of water in receiving streams during a storm.

Although stormwater is generally discharged to surface waters, an alternative is to discharge stormwater to underground wells. Approximately 18,000 dry wells and similar infiltration devices are used to dispose of stormwater in Washington. However, such discharges can contaminate public or private water wells.

Numerous studies conducted during the late 1970s and 1980s showed that stormwater runoff from urban and industrial areas is a potentially significant source of pollution (USEPA, 1983). A recent paper, by May et al, titled "Effects of Urbanization on Small Streams in The Puget Sound Lowland Ecoregion," 1997, demonstrated that:

Stream impairment begins at five to ten percent total impervious area in the watershed. Urbanization brings an increase in impervious land cover and a corresponding loss of natural vegetation. Land clearing, soil compaction, riparian corridor encroachment, and modifications to the surface water draining network all work together to increase runoff and change watershed hydrology. Riparian zones are fragmented and stripped, no longer able to provide shade, nutrients and large woody debris to the stream. Streamflow fluctuates wildly from summer to winter, and from storm to storm. Streambank erosion brings fine sediment deposition and loss of spawning and incubating habitat.

1998 FINDING AND CONDITION FROM EPA AND NOAA

Finding

Within the Puget Sound planning area, Washington's program includes management measures in conformity with the 6217(g) guidance, except for new development. Outside of the Puget Sound planning area, Washington's program does not include management measures in conformity with the 6217(g) guidance for new development, watershed protection, site development, construction site erosion and sediment control, construction site chemical control and existing development. The State has identified a backup enforceable authority for these

management measures but has not yet demonstrated the ability of the authority to ensure implementation of the management measures throughout the 6217 management area.

Condition

Within three years, Washington will include in its program a management measure in conformity with the 6217(g) management measures for new development within the Puget Sound planning area. Outside of the Puget Sound planning area, Washington will, within three years, include management measures in conformity with the 6217 (g) guidance for new development, watershed protection, site development, construction site erosion and sediment control, construction site chemical control and existing development. Within one year Washington will develop a strategy (in accordance with Section XIII, page 14) to implement the management measures throughout the 6217 management area.

Rationale

Within the Puget Sound planning area, Washington's 1994 Puget Sound Water Quality Management (PSWQ) Plan includes practices to achieve all of the management measures except new development. In particular, Washington's "Nonpoint Source Rule" (WAC Chapter 400-12) and the Department of Ecology's Stormwater Management Manual for the Puget Sound Basin provide practices to implement many of the urban management measures for the Puget Sound planning area. Both the Nonpoint Source Rule and the Stormwater Manual were developed pursuant to the PSWQ plan. However, neither the Nonpoint Source Rule nor the Stormwater Manual assures a reduction in Total Suspended Solids from post-development levels as provided for in the new development management measure.

Although the following authorities that Washington proposes for outside the Puget Sound planning area do provide for the development of local laws and programs that address aspects of these management measures, they do not provide a uniformly consistent fabric that incorporates all aspects of these management measures throughout the entire 6217 management area.

Outside of the Puget Sound planning area, Washington proposes to implement the 6217(g) urban management measures through: the establishment of Shellfish Protection Districts, the Growth Management Act (Ch. 36.70A RCW), the Shoreline Management Act (Ch. 90.58 RCW), the State Environmental Policy Act (Ch. 43.21c RCW) and the Model Toxics Control Act (Ch. 70.105D RCW). However, there is no link between these programs and the management measures to require the implementation of these measures.

Shellfish Protection Districts could provide a vehicle to implement the management measures in designated areas. However, the information provided in the program submission was not sufficient to determine if the management measures will be used in the Districts' decision making process. In addition, Shellfish Protection Districts are voluntary and only apply to limited geographical areas within the 6217 management area.

Under the Growth Management Act (GMA), selected local governments must adopt a comprehensive land use plan and develop regulations that incorporate the goals of the plan. The GMA provides general guidance that encourages local governments to adopt goals and policies for promoting infiltration of storm water, wetland conservation and protection, preservation of natural drainage courses including fish and wildlife habitat and the integration of storm water management into all ordinances affecting water quality. The GMA, however, does not provide specific standards and criteria or development regulations for site controls. Where local governments do not adequately develop comprehensive plans or development regulations, the State lacks authority to develop and implement such plans and regulations and relies only on financial disincentives through the authority to withhold tax revenues from local governments.

The Shoreline Management Act applies to those lands extending landward within 200 feet of the shorelines of the state, which includes all marine water, all lakes twenty acres and larger, all streams and rivers with a mean annual flow of more than twenty cubic feet per second and associate wetlands. As part of the effort to integrate shoreline management with growth management, as directed by the 1995 legislature in ESHB 1724, the Department of Ecology is

amending procedures for implementing the Shoreline Management Act. Until the rule making is completed, the ability of the Shoreline and Growth Management Acts to implement the management measures is unknown.

The State Environmental Policy Act (SEPA) requires state and local governments to consider environmental impacts in their decision making process, including impacts from permitting site development and construction practices. SEPA provides the authority to

government agencies to deny, condition or require mitigation under development or construction permits. Conceptually, the 17 management measures could be used as one basis for SEPA decisions. However, it is impossible with the information provided to determine or ensure that state and local agencies are required to implement these management measures through the SEPA review process.

The Model Toxics Control Act only addresses proper storage and disposal of toxic materials. It does not provide for procedures to address general housekeeping of construction materials and nutrients on construction sites.

The State has identified the State Water Pollution Control Act (Ch. 90.48 RCW) as a backup enforceable policy but has not described how the Act will be used to ensure implementation of the management measures.

EFFORTS TO IMPROVE CONSTRUCTION AND DEVELOPMENT PROGRAMS IN WASHINGTON

These management measures apply to construction and development:

- 1. New Development
- 2. Watershed Protection
- 3. Site Development
- 4. Construction Site Erosion and Sediment Control
- 5. Construction Site Chemical Control
- 6. Existing Development

The guidelines for implementing the Shoreline Management Act are being updated and will be adopted into rule by the summer of 2000. This is the first update of the guidelines since the passage of the act in 1973. Many of the management measures are now included within those guidelines. Local governments will be updating their Shoreline Master Programs over the next few years to comply with the new guidelines.

Management Measure Number IIA: New Development

Description from Federal Guidance:

- (1) Through design or performance:
 - (a) After construction has been completed and the site is permanently stabilized, reduce the average annual total suspended solid (TSS) loadings by 80 percent. For the purposes of this measure, an 80 percent TSS reduction is to be determined on an average annual basis, or
 - (b) Reduce the post-development loadings of TSS so that the average annual TSS loadings are no greater than predevelopment loadings, and
- (2) To the extent practicable, maintain post-development peak runoff rate and average volume at levels that are similar to predevelopment levels.

Sound watershed management requires that both structural and nonstructural measures be employed to mitigate the adverse impacts of storm water. Nonstructural Management Measures II.B and II.C can be effectively used in conjunction with Management Measure II.A to reduce both the short- and long-term costs of meeting the treatment goals of this management measure.

Calculations for TSS loading in (1) are based on the average annual TSS loadings from all storms less than or equal to the 2-year/24-hour storm. TSS loadings from storms greater than the 2-year/24-hour storm are not expected to be included in the calculation of the average annual TSS loadings.

1998 Finding from EPA and NOAA

Due to the complexity of the Construction and Development management measures, please see Urban Stormwater introductory section for complete set of findings.

Existing Statute(s) and Regulations

Water Pollution Control Act (Chapter 90.48 RCW)

"Stormwater Management in Washington State"

State Environmental Policy Act (Chapter 43.21A RCW)

Chapter 197-11 WAC

Community and Urban Forestry (Chapter 76.15 RCW)

Description of Current Programs in Washington

Currently, the Best Management Practices in the 1992 stormwater manual are required in the State's Construction General Permit. Generally, in urban areas, a sediment retention facility is constructed as part of the development to allow slow release of the waters to the municipal stormwater system and/or to groundwater, as required by the Construction General Permit. These retention facilities allow for the settling of sediment and other suspended solids.

In addition, local governments may use SEPA to require site-specific mitigation measures to limit sediment release both during and after construction. Several sections of the SEPA checklist are geared to investigate erosion potential for new development. The requirements of this management measure are addressed through parts B1 Environmental Elements (Earth) of the SEPA Checklist found in the preceding Urban category introduction. Permits can be denied if an appropriate sediment management plan is not part of the proposal.

Sediment reduction can also be accomplished by stormwater reduction. For example, the City of Lacey requires new developments to retain as much stormwater as possible on site. Lacey has also constructed stormwater treatment facilities to remove sediment and associated pollutants before the runoff enters receiving waters.

The discharge prohibition in RCW 90.48.080 provides a back up authority if sediment is released to the state's water. If such a release occurs, Ecology can initiative an enforcement action including notices, fines and penalties, as noted in Chapter 3.

Recent research at the University of Washington has found that certain types of landscaping can reduce stormwater volume and sediment delivery to water. Wetlands and forested areas can absorb much more water and pollutants than lawns, exposed soil, or impervious surfaces. Thus, one method to implement this management measure would be to encourage the growth of the urban forest and preservation of wetlands.

Most Washington cities have ordinances which require natural landscaping in new developments. Market forces also encourage landscaping prior to sale, lease, or use. Depending on the location of the development within the state, natural landscaping may include the planting of various trees.

DNR maintains an Urban and Community Forestry program. This program:

- provides grants to cities and counties for urban forest restoration projects
- provides technical assistance to cities in urban forest preservation
- coordinates other urban forestry programs, such as TREE CITY, USA within the state.

WSU Cooperative Extension provides a wide range of educational programs for urban and suburban residents, all based on best management practices. These range from:

- Master Gardener responses to homeowner pesticide questions
- Education programs targeting nursery staff
- Watershed Steward volunteer training programs
- Home*A*Syst drinking water protection program
- "With a Water View" realtors education program

Additional needs to meet the management measure

The revision of the 1992 stormwater manual needs to be completed with appropriate BMPs to implement this management measure.

Actions to meet the management measure

 Develop a Stormwater Management Strategy which includes updating the stormwater manual and helping local governments implement the manual to address stormwater impacts on habitat and water quality of new development.

Additional Actions to improve water quality

- Identify and participate in a zero impact stormwater demonstration project (Urb 8)
- Expand the Urban and Community Forestry program to meet current requests for assistance from local governments, and perform adequate outreach. (Urb 9)
- Develop incentives for cities to participate in the TREE CITY, USA and other national programs encouraging urban forestry. (Urb 10)

Management Measure Number IIB:

Watershed Protection

Description from Federal Guidance

Develop a watershed protection program to:

- 1. Avoid conversion, to the extent practicable, of areas that are particularly susceptible to erosion and sediment loss;
- 2. Preserve areas that provide important water quality benefits and/or are necessary to maintain riparian and aquatic biota; and
- 3. Site development, including roads, highways, and bridges, to protect to the extent practicable the natural integrity of water bodies and natural drainage systems.

1998 Finding from EPA and NOAA

Due to the complexity of the Construction and Development management measures, please see Urban introductory section for complete set of findings.

Existing Statute(s) and Regulations

Growth Management Act (Chapter 36.70A RCW)
Salmon Restoration Act (Chapter 75.46 RCW)
State Environmental Policy Act (Chapter 43.21A RCW)
Chapter 191-11 WAC SEPA Requirements
Watershed Planning Act (Chapter 90.82 RCW)

Description of Current Programs in Washington

The Growth Management Act (GMA) requires all local governments in the state to designate and protect critical or environmentally sensitive areas within their boundaries. Critical areas include:

"the following areas and ecosystems: (a) wetlands; (b) areas with a critical recharging effect on aquifers used for potable water; (c) fish and wildlife habitat conservation areas; (d) frequently flooded areas; and (e) geologically hazardous areas." (RCW 36.70A.030(5))

The State Department of Community, Trade and Economic Development has prepared guidelines for local governments on the designation of critical areas. Local governments are to pass ordinances and develop regulations to protect these areas.

In addition, local governments are required to designate and develop open space areas and corridors which are to be preserved by regulation. Purchase of open space areas by local governments is also authorized in GMA.

Growth Management Act:

RCW 36.70A.170 requires all counties and cities to designate critical areas RCW 36.70A.172 requires the use of best available science in designating and protecting critical areas

RCW 36.70A.175 requires that wetlands be designated in accordance with Ecology's manual developed under the Shoreline Management Act

RCW 36.70A.060 requires cities and counties to adopt development regulations "to assure conservation" of these lands.

Local government ordinances and efforts are reviewed by the state's Department of Community, Trade and Economic Development and adjudicated by one of the state's Growth Management Hearings Boards. Legal actions by citizens can also be brought before the boards.

There are many watershed planning efforts in the state to implement the programs discussed in the table:

Chapter 75.46 RCW requires local governments, jointly with tribes, to identify stream project in watersheds requiring restoration (section 060). As part of this effort, the Conservation Commission prepares a "limiting factors analysis" describing areas and conditions that reduce the viability of the salmon population (section 070).

Chapter 90.82 RCW allows local governments to inventory water quality (section 090) and habitat (section 100) in each WRIA. Projects to improve water quality and/or habitat are identified and prioritized as part of the planning effort (section 110).

Ecology itself has the Local Action Teams. Teams have been established in the Nooksack, Snohomish, and Yakima Basins. In addition, Ecology's water quality program continues to implement its watershed approach, scoping out issues in each WRIA every five years, and seeking solutions to identified problems.

Finally, the requirements of this management measure are addressed through parts B1, B3, and B8 Environmental Elements (Earth, Water, Shoreline and Land Use) of the SEPA Checklist found in the preceding Urban category introduction.

Additional needs to meet this management measure

None.

Actions to satisfy this management measure

Adequate programs and processes exist to implement this management measure.

Management Measure Number IIC: Site Development

Description from Federal Guidance

Plan, design, and develop sites to:

- 1. Protect areas that provide important water quality benefits and/or are particularly susceptible to erosion and sediment loss;
- 2. Limit increases of impervious areas, except where necessary;
- 3. Limit land disturbance activities such as clearing and grading, and cut and fill to reduce erosion and sediment loss; and
- 4. Limit disturbance of natural drainage features and vegetation.

1998 Findings from EPA and NOAA

Due to the complexity of the Construction and Development management measures, please see Urban introductory section for complete set of findings.

Existing Statute(s) and Regulations

Growth Management Act (Chapter 36.70A RCW)
State Environmental Policy Act (Chapter 43.21C RCW)
Chapter 197-11 WAC
Water Pollution Control Act (Chapter 90.48 RCW)
"Stormwater Management in Washington State"

Description of Current Programs in Washington

The first component of this management measure is implemented using the Growth Management Act (RCW 36.70A.060, 170, 172, 175, as noted in the previous management measure).

In addition, the requirements of this management measure are addressed through parts B1, B3, and B8 Environmental Elements (Earth, Water, Shoreline and Land Use) of the SEPA Checklist found in the preceding Urban category introduction.

Additional needs to meet the management measure

The revision of the 1992 stormwater manual needs to be completed with appropriate BMPs to implement this management measure.

Actions to meet the management measure

 Develop a Stormwater Management Strategy which includes updating the stormwater manual and helping local governments implement the manual to address stormwater impacts on habitat and water quality of new development.

<u>Management Measure Number IIIA:</u> Construction Site Erosion and Sediment Control

Description from Federal Guidance

- 1. Reduce erosion and, to the extent practicable, retain sediment onsite during and after construction, and
- 2. Prior to land disturbance, prepare and implement an approved erosion and sediment control plan or similar administrative document that contains erosion and sediment control provisions.

1998 Findings from EPA and NOAA

Due to the complexity of the Construction and Development management measures, please see Urban introductory section for complete set of findings.

Existing Statute(s) and Regulations

Chapter 43.21C RCW State Environmental Policy Act
Chapter 197-11 WAC SEPA Rules
Chapter 90.48 RCW Water Pollution Control Act
Chapter 173-200A WAC Standards for Surface Water Quality
"Stormwater Management in Washington State"

Description of Current Programs in Washington

Education: Associated General Contractors of Washington (AGC) has created an Education Foundation which provides educational materials and training to contractors and their employees regarding BMPs for construction. The foundation has prepared a booklet on erosion control describing various methods that have proved successful in Washington. The booklet has been distributed statewide.

Enforcement: The requirements of the stormwater manual are part of the Construction General permit. Ecology inspects sites under construction for compliance with the general permit. Building sites are also inspected by cities and counties to verify compliance with the building permit. Sites which are not in compliance with their permits can be issued a "stop work" order and/or fined by local governments. Inspections may be initiated by Ecology, the city or county as a routine measure or in response to citizen complaint.

RCW 90.48.020 prohibits the discharge of any material that would alter the physical, biological or chemical characteristics of a water body. Since sediment alters the physical characteristics of water by introducing turbidity, a sediment discharge is considered a violation of RCW 90.48.020. Many local governments have enacted their own sediment

control ordinances, with penalties. Both Chapter 90.48 and local ordinances allow for civil penalties.

Additional needs to meet the management measure

The revision of the 1992 stormwater manual needs to be completed with appropriate BMPs to implement this management measure.

Actions to meet the management measure

 Develop a Stormwater Management Strategy which includes updating the stormwater manual and helping local governments implement the manual to address stormwater impacts on habitat and water quality of new development.

Management Measure Number IIIB:

Construction Site Chemical Control

Description from Federal Guidance

- 1. Limit application, generation, and migration of toxic substances;
- 2. Ensure the proper storage and disposal of toxic materials; and
- 3. Apply nutrients at rates necessary to establish and maintain vegetation without causing significant nutrient runoff to surface waters.

1998 Findings from EPA and NOAA

Due to the complexity of the Construction and Development management measures, please see Urban introductory section for complete set of findings.

Existing Statute(s) and Regulations

Hazardous Waste Management Act (Chapter 70.105 RCW)
Chapter 173-303 WAC
Water Pollution Control Act (Chapter 90.48 RCW)

Description of Current Programs in Washington

The Construction General Stormwater Permit, issued under RCW 90.48.160, requires that:

"All pollutants, except sediment, that occur on-site during construction shall be handled and disposed of in a manner that does not cause contamination of stormwater."

This requirement addresses nutrients, particularly those used for landscaping, as well as toxic substances. In addition, the permit requires that chemicals, paints, oils, waste materials, and batteries be stored in impervious, bermed areas.

In addition, enforcement action can also occur through the State's Dangerous Waste Regulations (Chapter 173-303) under the Hazardous Waste Management Act (Chapter RCW 70.105.080 - .097) for chemical releases and mismanagement. These regulations (WAC 173-303-070) divide commercial and industrial operations into three categories:

Large generators: generate more than 220 pounds of hazardous waste per month and store more than 2200 pounds on site

Medium generators: generate less than 220 pounds of hazardous waste per month and store less than 2200 pounds on site

Small generators: generate less than 220 pounds of hazardous waste per month and store less than 2200 pounds of hazardous waste on site

Large and medium generators are subject to the Dangerous Waste Regulations which require annual reports, manifesting of waste, and compliance with specific standards in the storage, transporting, treatment and disposal of hazardous waste. The standards required in the Dangerous Waste Regulations exceed the requirements of this management measure.

However, most construction sites probably are small generators as long as they limit the generation and use of toxic materials on site to the required amounts. Small generators are conditionally exempt from the Dangerous Waste Regulations. The conditions of the exemption are that the generator:

- (i) designate the hazardous waste on site;
- (ii) manage their waste in a way that does not pose a potential threat to human health or the environment [this includes certain housekeeping practices]; and
- (iii) dispose of the waste in a facility permitted to handle it.

Thus, the small generator maintains his exemption by properly storing and disposing of chemicals on site. Any chemical that enters the environment or has the potential to enter the environment, such as a spill or discharge to water, becomes dangerous waste, and the site falls under the Dangerous Waste Regulations.

In addition, some counties have developed regulations for small generators of hazardous waste under the authority that Ecology's Moderate Risk Waste Program established in RCW 70.105.220 et seq.

Additional needs to meet the management measure

The revision of the 1992 stormwater manual needs to be completed with appropriate BMPs to implement this management measure.

Actions to meet the management measure

 Develop a Stormwater Management Strategy which includes updating the stormwater manual and helping local governments implement the manual to address stormwater impacts on habitat and water quality of new development.

Management Measure Number IVA: Existing Development

Description from Federal Guidance

Develop and implement watershed management programs to reduce runoff pollutant concentrations and volumes from existing development that:

- (1) identify priority local and/or regional watershed pollutant reduction opportunities, e.g., improvements to existing urban runoff control structures;
- (2) include a schedule for implementing appropriate controls;
- (3) limit destruction of natural conveyance systems; and
- (4) where appropriate, preserve, enhance, or establish buffers along surface water bodies and their tributaries.

Existing Statute(s) and Regulations

Salmon Recovery Act (Chapter 75.46 RCW)
Watershed Planning Act (Chapter 90.82 RCW)
Water Pollution Control Act (Chapter 90.48 RCW)
"Stormwater Management in Washington State"
Shoreline Management Act (Chapter 90.58 RCW)

1998 Finding from EPA and NOAA

Due to the complexity of the Construction and Development management measures, please see Urban introductory section for complete set of findings.

Description of Current Programs in Washington

The Watershed Planning Act requires local governments to assess the impacts to water quality and water quantity, and to develop programs and opportunities for pollution reduction. This program is solely locally driven, with local priorities. Since locals receive state grant funds, the state has approval authority over the watershed plan. Approval requires that the plan has implementation schedules and appropriate controls.

The Watershed Planning Act provides for local governments to establish a working group called a "planning unit" to assess the state of the watershed. Planning units also include representatives of tribal governments and State agencies. Under the act, watersheds are defined as the State's 62 Water Resource Management Areas (WRIAs). In the first round, groups representing 12 WRIAs began a water quality analysis. Many areas that did not choose to investigate water quality have already completed and are implementing watershed plans under Chapter 400-12 WAC. The act requires planning units who are doing a water quality assessment to:

- examine existing studies on the water quality of the watershed, especially those related to the watershed's compliance with the State's Water Quality Standards
- examine existing studies on causes of pollution in the watershed, including point and nonpoint sources of pollution and the pollution carrying capacity of the various waterbodies in the watershed
- examine the characteristic uses of the water bodies in the watershed
- examine any total maximum daily load established under 33 USC 1313 (federal Clean Water Act) for a water body within the watershed
- recommend an approach for implementing any total maximum daily load requirements within the watershed in order to meet water quality planning
- recommend monitoring actions to see if water quality improvement has been sufficient to meet water quality standards
- identify and consider priorities for both long term and short term projects which will improve water quality in the watershed (RCW 90.82.090 and RCW 90.82.110).

Grants are provided to planning units to accomplish these tasks. A maximum of \$500,000 can be granted to each WRIA for planning purposes under this act. However, planning and implementation activities under 90.82 are voluntary.

In addition, the State's Salmon Recovery Act (Chapter 75.46 RCW) provides for a similar planning and implementation process, but is focused on improving fish habitat. RCW 36.70A.060 requires local governments, jointly with tribes, to identify stream project in watersheds requiring restoration, and section 070 of the act requires projects to be prioritized and a work schedule prepared.

In summary, this management measure is implemented by:

Management Measure Component	Statute
1 Identify pollution reduction	RCW 75.46.060, 070
opportunities	RCW 90.82.090, 100, 110
2 Implementation schedule	RCW 75.46.070, RCW 90.82.110

Additional needs

None.

Actions to implement this management measure

Adequate measures exist to implement this management measure.

ON-SITE SEWAGE SYSTEMS

BACKGROUND

On-site sewage systems, known as septic systems, serve approximately 1.4 million people in the 39 Washington counties. Most of the administration of on-site septic system regulations and programs is conducted by the 32 local health jurisdictions of the State. However, local health departments do not have enough field staff to adequately monitor systems for failure. The statewide average is approximately one field staff for every 7,500 on-site systems. In support of local efforts, the State Department of Health provides minimum State rules and regulations, technical assistance, technical review of alternative technologies, training, program review, and general supervision. DOH recommends standards and guidance documents for alternative technologies and technical issues. The regulations governing on-site systems are Chapters 246-272 WAC, On-site Sewage Systems; Rules and Regulations and 173-216 WAC, State Wastewater Discharge Permit System.

The total number and density (number of systems per unit area) is increasing in counties undergoing urbanization. The fastest urbanization is presently occurring in Island, King, Kitsap, Pierce, Snohomish and Thurston counties. There are an estimated 450,000 on-site sewage systems in Puget Sound watersheds, with more than 10,000 added each year (1994 Puget Sound Water Quality Management Plan). This is nearly 80 percent of the total number of on-site systems in the State.

Many on-site systems were installed before State minimum standards were adopted (1974). Sanitary surveys reveal some common factors in on-site system failures. These include poor soils, obsolete design, poor construction, loose regulation, poor operation and maintenance, and limited knowledge on the part of local professionals and owner/operators. The recently revised State on-site system regulations deal with most of these factors.

Even with suitable soil conditions and proper installation, the conventional septic tank system creates some concern about potential impacts on human health and water quality. Statewide regulations call for competent professionals to certify soil capability and design technology.

Local health jurisdictions are responsible for permitting on-site systems if the flow does not exceed 3,500 gallons per day. The State Department of Health has jurisdiction over larger systems. The general practice in Washington has been to discourage the use of on-site systems to treat commercial wastewater or pre-treat to typical residential wastewater quality. There are concerns that this is not an appropriate treatment technology and potential pollutants such as organic compounds or metals are likely to pass through untreated. Wastewater rich in organics, such as fruit processing wastes, but with an inappropriate nutrient balance such as low nitrogen or phosphorus, is another area where on-site treatment needs to be carefully evaluated.

Many aspects of the revised statewide regulations were driven by earlier versions of the Puget Sound Plan. The 1994 Puget Sound Plan stresses the importance of good State oversight and local implementation. It also calls on local health departments to design and adopt programs to monitor on-site systems by January 2000, a requirement that mirrors similar provisions in the new regulations.

Within Puget Sound, the focus for on-site programs is to protect drinking water, recreational waters, shellfish growing waters, and to keep the public from being directly exposed to untreated sewage. Upon downgrade of a shellfish bed, the State works with local governments to develop and implement a shellfish closure response strategy, which includes identification and correction of failing on-site septic systems. The local jurisdiction must also create a shellfish protection district to implement long-term solutions to the problems, including on-site septic measures such as inspections, corrections, education, and operation and maintenance. Local watershed plans must include nonpoint pollution control strategies for addressing on-site septic systems, which can include voluntary, educational and regulatory programs.

NONPOINT POLLUTION ASSOCIATED WITH ON-SITE SEWAGE SYSTEMS

On-site Failure Rates. The exact number of failing systems is not known. Sanitary surveys suggest that failure frequency in Puget Sound ranges from five to 29 percent. In some isolated areas around Puget Sound, failure frequency has approached 100 percent. Failing systems pose a potential health hazard because domestic wastewater can contain bacteria, viruses, protozoa, and helminths (worms) harmful to people. Typhoid fever, gastrointestinal infections, and infectious hepatitis have been linked to failing on-site systems around the country. (Peterson, 1971)

Threat to Shellfish Resource. Shellfish production in Washington ranks among the highest in the country. Washington is first in oyster production. Clam beds in Skookum Inlet (south Puget Sound) are the nation's most productive. The State's shellfish industry generates 70 million wholesale dollars per year with considerable potential for expansion, particularly for income-poor rural coastal counties. In past years, the State Department of Health has downgraded nearly 40 percent of Puget Sound shellfish beds. Since 1981, 46,000 acres of shellfish beaches have been downgraded. But the tide may be turning. In 1998, five growing areas containing 5,400 acres were upgraded and only one area of 22 acres was downgraded. About 40 percent of recreational shellfish sites are still threatened. Failing on-site systems have been identified as a contributing factor in over 80 percent of the downgrades. (DOH Annual Shellfish Inventory, December 1998)

Ground Water Contamination Nitrate contamination of ground water has been detected throughout the state. Contamination has been traced to on-site systems and livestock operations. However, many other sources of nitrates have not been studied (e.g. domestic lawn fertilizers, agricultural fertilizers). Nitrate contributions from septic systems seem to stay below the threshold for ground water contamination when housing densities stay below 3.5 units per acre.

Nutrient Enrichment of Receiving Waters Studies throughout the state show seasonally high levels of inorganic nutrients. In addition to inorganics, the fjord character of several basins in Puget Sound (Hood Canal, South Puget Sound, Port Susan) makes the Sound particularly sensitive to organic loading. Lake Chelan and Lake Roosevelt, among others, are also sensitive to increased organic loading. Management measures include expensive alternative designs for septic systems and limiting housing density.

SOURCE CONTROL STRATEGY

There are two management measures for On-site Sewage Systems - New On-Site Sewage Systems, and Operating On-Site Sewage Systems.

The management measures for these subcategories are governed by the State's public health statutes (Title 70 RCW) and also implemented by local governments. However, key regulations and standards are established by the State, primarily by Ecology and Health.

On-site sewage system regulations fall under Chapter 70.118 RCW and Chapter 246-272 WAC. Although Chapter 246-272 WAC was developed by the State Department of Health, local health boards issue the permits and perform the inspections and other tasks associated with this regulation.

Many counties and agencies are involved with on-site education activities. Failing septic systems are a primary issue of concern for estuarine health. In response, the Padilla Bay staff developed a Septic Education Kit to serve as a "toolbox" with everything an educator would need for a complete on-site education program, posters, slide shows, flyers, videos, etc. In the spring of 1999, NOAA agreed to produce and distribute the Kit, so that it would be available on a national basis.

1998 FINDING FROM EPA AND NOAA

"Finding:

Washington's program includes management measures in conformity with the 6217(g) guidance and enforceable policies and mechanisms to ensure implementation throughout the 6217 management area, except for a program that ensures inspection of onsite disposal systems (OSDS) at a frequency adequate to ascertain system failure and provides for denitrification where nitrogen-limited surface waters may be adversely affected by excess nitrogen loadings from new OSDS.

Condition:

Within two years, Washington will include in its program management measures in conformity with the 6217(g) guidance and enforceable policies and mechanisms to ensure implementation throughout the 6217 management area for a program that ensures inspection of OSDS at a frequency adequate to ascertain system failure and provides for denitrification where nitrogen-limited surface waters may be adversely affected by excess nitrogen loadings from new OSDS."

Rationale:

Washington has a regulatory program for OSDS, administered by the Department of Health, that is generally consistent with the OSDS management measures. The State, however, lacks requirements for the periodic inspections of operating OSDS outside of areas formally designated as areas of special concern. Nor does the State have provisions for the installation and upgrade of denitrifying OSDS adjacent to nitrogenlimited surface waters.

RESPONSE TO FINDINGS

Washington believes that it meets all management measure requirements for onsite sewage systems.

Management Measure Number VA:

New Onsite Sewage Systems

Description from Federal Guidance

- (1) Ensure that new Onsite Disposal Systems (OSDS) are located, designed, installed, operated, inspected, and maintained to prevent the discharge of pollutants to the ground surface and, to the extent practicable, reduce the discharge of pollutants into ground waters that are closely hydrologically connected to surface waters. Where necessary to meet these objectives: (a) discourage the installation of garbage disposals to reduce hydraulic and nutrient loadings; and (b) where low-volume plumbing fixtures have not been installed in new developments or redevelopments, reduce total hydraulic loadings to the OSDS by 25 percent. Inspect OSDS at pre-construction, during construction, and at post-construction.
- (2) Direct placement of OSDS away from unsuitable areas. Where OSDS placement in unsuitable areas is not practicable, ensure that the OSDS is designed or sited at a density so as not to adversely affect surface waters or ground water that is closely hydrologically connected to surface water. Unsuitable areas include, but are not limited to, areas with poorly or excessively drained soils; areas with shallow water tables or areas with high seasonal water tables; areas overlaying fractured bedrock that drain directly to ground water; areas within floodplains; or areas where nutrient and/or pathogen concentrations in the effluent cannot be sufficiently treated or reduced before the effluent reaches sensitive waterbodies.
- (3) Establish protective setbacks from surface waters, wetlands, and floodplains for conventional as well as alternative OSDS. The lateral setbacks should be based on soil type, slope, hydrologic factors, and type of OSDS. Where uniform protective setbacks cannot be achieved, site development with OSDS so as not to adversely affect water bodies and/or contribute to a public health nuisance.
- (4) Establish protective separation distances between OSDS system components and ground water which is closely hydrologically connected to surface waters. The separation distances should be based on soil type, distance to ground water, hydrologic factors, and type of OSDS.
- (5) Where conditions indicate that nitrogen-limited surface waters may be adversely affected by excess nitrogen loadings from ground water, require the installation of OSDS that reduce total nitrogen loadings by 50 percent to ground water that is closely hydrologically connected to surface water.

1998 Finding from EPA and NOAA

See general discussion of onsite sewage for findings.

Existing Statute(s) and Regulations

On-site Sewage Systems (Chapter 70.118 RCW)
Powers and Duties of State Board of Health (Chapter 43.20 RCW)
Local Boards of Health (Chapter 70.05 RCW)
Chapter 246-272 WAC (Department of Health)

Description of Current Programs in Washington

The Department of Health is authorized to promulgate minimum standards for the operation and maintenance of on-site sewage systems by regulation (RCW 43.20.050). Chapter 246-272 WAC contains these standards whose purpose is to minimize "public health effects of on-site sewage systems on surface and ground waters;" "establish design, installation, and management requirements for on-site sewage systems to accommodate long-term treatment and disposal of sewage;" and "establish minimum functional regulations for local boards of health choosing not to adopt local regulations." (WAC 246-272-050)

These regulations prohibit the discharge of sewage to surface waters and provide a permitting system for on-site sewage systems. Conditions for permits are set, requiring minimum land areas, setbacks, site characterizations, soil logs, slopes, minimum tank volumes and consideration of environmental effects, such as land use and growth potential. Circumstances are described which require connection to a public sewer system. On-site sewage system designers and installers must be certified by local boards of health. The Department of Health and local health officers establish the guidelines for certification. In addition, local health officers are authorized to inspect on-site systems under construction. Prior to construction, sites can be inspected as part of the permitting process.

Local boards of health are responsible to implement Chapter 246-272 WAC unless they promulgate more stringent regulations (RCW 70.118.050). Enforcement of rules related to onsite sewage systems is authorized in Chapter 70.05 RCW. In addition, local boards of health are required to:

"identify failing septic tank drainfield systems in the normal manner and will use reasonable effort to determine new failures." (RCW 70.118.030)

Local health districts perform routine inspection throughout their jurisdictions. For example, Thurston County sends a letter out to all owners of onsite sewage systems to remind them to pump their tanks. When the tank is pumped, the owner submits verification to the county. If verification is not received in a timely fashion, an inspector visits the site. In addition, a random selection of other sites are visited.

Washington currently has no program to manage de-nitrification of surface waters from discharges of on-site sewage systems, other than the prohibition of discharges found in WAC 246-272-060. Few surface waters in the state have demonstrated nitrate overload,

and nitrate is not a parameter governed under the State's Water Quality Standards for Surface Waters.

Almost all nitrification in the state is in agricultural areas and generally attributable to fertilizer use. Washington's agricultural community has consistently had very low use of nitrate fertilizers, except in some irrigated areas. The State intends to defer consideration of this program until the next update, which will occur in year five of this plan, or later if necessary, in order to focus on more prominent sources of nonpoint pollution. The chart on the second page of chapter 2 illustrated the lack of nitrogen-impaired waters (lowest bar) versus the more prominent nonpoint pollution problems of temperature and fecal contamination.

In a partnership between DOH, Washington On-Site Sewage Association, and WSU, the Northwest On-Site Wastewater Training Center was established for the purpose of promoting professional excellence, and to raise the industry's standards on designing and installing on-site sewage systems. Basic principles relating to on-site sewage systems are the same everywhere. However, site specific requirements differ. Classes at the center relate to the regulations, guidelines, and requirements in Washington State.

Additional needs

None

Actions to satisfy this management measure

Adequate programs exist to implement this management measure.

Additional Actions to improve water quality

Though programs exist to meet this management measure, the state plans to improve on current programs with the following actions:

- Identify and approve new technologies for on-site waste treatment. (Urb 13)
- Expand the use of MOAs between Ecology and local governments to address the needs for expansion of sewer services to areas of actual or projected high population density. (Urb 15)
- Build the capacity of Northwest On-site Wastewater Training Center (NOWTC) to deliver educational programs to improve operation and management of on-site sewage systems.
- Establish an effective statewide education program in cooperation with local health jurisdictions that will inform the general public utilizing on-site sewage disposal of the importance of properly maintaining their systems and how to do that. (Urb 14)

Management Measure Number VB: Operating On-Site Sewage Systems

Description from Federal Guidance

- (1) Establish and implement policies and systems to ensure that existing OSDS are operated and maintained to prevent the discharge of pollutants to the surface of the ground and, to the extent practicable, reduce the discharge of pollutants into ground waters that are closely hydrologically connected to surface waters. Where necessary to meet these objectives, encourage the reduced use of garbage disposals, encourage the use of low-volume plumbing fixtures, and reduce total phosphorus loadings to the OSDS by 15 percent (if the use of low-level phosphate detergents has not been required or widely adopted by OSDS users). Establish and implement policies that require an OSDS to be repaired, replaced, or modified where the OSDS fails, or threatens or impairs surface waters.
- (2) Inspect OSDS at a frequency adequate to ascertain whether OSDS are failing.
- (3) Consider replacing or upgrading OSDS to treat influent so that total nitrogen loadings in the effluent are reduced by 50 percent. This provision applies only:
 - where conditions indicate that nitrogen-limited surface waters may be adversely affected by significant ground water nitrogen loadings from OSDS, and
 - where nitrogen loadings from OSDS are delivered to ground water that is closely hydrologically connected to surface water.

1998 Finding from EPA and NOAA

See general discussion of onsite sewage for findings.

Existing Statute(s) and Regulations

Local Boards of Health (Chapter 70.07 RCW)
Biosolids (Chapter 70.95J RCW)
Phosphorus in Detergents (Chapter 70.95L RCW)
Onsite Sewage Systems (Chapter 70.118 RCW)
Water Pollution Control Act (Chapter 90.48 RCW)

Description of Current Programs in Washington

The responsibility of the local board of health is to:

- 1. "Enforce through the local health officer or the administrative officer..., if any, the public health statutes of the state and rules promulgated by the state board of health and the secretary of health;
- 2. Supervise the maintenance of all health and sanitary measures for the protection of the public health within its jurisdiction;

- 3. Enact such local rules and regulations as are necessary in order to preserve, promote and improve the public health and provide for the enforcement thereof;
- 4. Provide for the control and prevention of any dangerous, contagious or infectious disease within the jurisdiction of the local health department;
- 5. Provide for the prevention, control and abatement of nuisances detrimental to the public health;" (RCW 70.07.060)

As is typical for government agencies, local boards of health base their enforcement work on routine inspections. The "public health statutes" referenced in subsection (1) are the laws in Title 70 RCW, with some exceptions, and include the on-site sewage law, Chapter 70.118 RCW. "Rules promulgated by the state board of health" are found in Title 246 WAC and include Chapter 246-272, onsite sewage.

In addition, local health boards have the specific requirement to:

"identify failing septic tank drainfield systems in the normal manner and will use reasonable effort to determine new failures." (RCW 70.118.030)

"The normal manner" implies the use of routine inspections. Where needed, inspections are targeted to areas where there has been pollution in commercial or recreational shellfish beds or freshwater.

Loadings from onsite sewage systems have been ameliorated by restrictions at the retail level:

- Chapter 70.118 RCW prohibits the use of chemical additives in onsite sewage systems unless certified by the state Department of Health
- Chapter 70.95L bans the retail sale of laundry detergents which contain 0.5 percent or more phosphorus by weight and dishwashing detergents which contain 8.7 percent or more phosphorus by weight

For a discussion of de-nitrification, see previous management measure.

An increasing number of counties and boards of health have begun using State Revolving Fund loans and local sewer rates to provide low-interest loans to homeowners to upgrade or repair malfunctioning on-site sewer systems. This new initiative is helping many small communities deal with difficult and expensive on-site problems.

Additional needs

None

Actions to satisfy this management measure

Adequate programs exist to implement this management measure.

Additional Actions to improve water quality

The state will enhance current programs by:

- Seeking additional legal and financial assistance for local health officers' inspections of onsite sewage systems (Urb 12)
- Identifying needs to enhance the on-site Operation and Maintainance program at both the state and local levels, recommending funding program to implement. (Urb 11)

POLLUTION PREVENTION

BACKGROUND

Many other land uses contribute to nonpoint pollution and the impairment of Washington's water bodies. Some of these include misuse of pesticides and fertilizers, household hazardous wastes, landfills, underground storage tanks, waste oil, tires, batteries, etc. They are all associated with human activity and require human involvement to solve the problem. The actual quantities of pollutants generated through these sources are unknown, given the manner in which these pollutants are generated. However, it is suspected that the relative contribution is substantial. This section will be a brief discussion of these sources and the types of pollutants generated.

Pesticides and Fertilizers. In Washington, most pesticides and fertilizers are used by the agricultural industry. However, a substantial amount of both is used by county road departments, golf courses, households, forest practices, and other uses. Since there is a wide variety of pesticides and fertilizer uses, it is difficult to identify and quantify their transport to receiving waters.

Landfills. Landfills, particularly older unlined sites, present a considerable threat to both surface and ground water quality. Washington has approximately 100 landfills with permits, and an estimated 100 non-permitted landfills larger than 1/2 acre. The number of landfills smaller than 1/2 acre is unknown.

Household Hazardous Wastes. A variety of chemicals is used in households, such as cleaners, pesticides, paints, and solvents. Some of these are toxic and may be introduced into the environment by different routes -- disposal into a municipal sewage treatment system, disposal into an on-site septic system, disposal into storm drains or on the ground, and landfill disposal.

Underground Storage Tanks. Underground storage tanks present a significant threat to surface and ground water statewide. Of the 33,000 or more commercial and industrial underground storage tanks in Washington, an estimated 10 percent may be leaking. Approximately two-thirds of all tanks are located in western Washington. Approximately 40 percent of all tanks are more than 15 years old. Nearly 80 percent are bare steel with no erosion protection.

Waste Oil, Tires, Batteries, and Abandoned Vehicles. These waste stream materials threaten both surface and ground water quality, since they are frequently disposed of inappropriately in land fills as well as by indiscriminate dumping.

Hazardous Materials. In Washington, the use of hazardous materials is regulated by both the federal Resource Conservation and Recovery Act of 1976 (RCRA) and the Clean Water Act (CWA). RCRA defines wastes as hazardous if they possess certain characteristics or if they have been specifically listed by EPA. Listed wastes may contain one or more of 375 hazardous constituents.

NONPOINT POLLUTION ASSOCIATED WITH THESE ACTIVITIES

Sources of water quality pollution in this category can be the most difficult to solve, given both the range of pollutants and the diversity of sources.

The principle concern regarding the effect of pesticides upon receiving waters is the extent to which pesticides biodegrade, bioaccumulate, or biomagnify. Some pesticides biodegrade readily. Others do not. The toxic effects of pesticides include a wide variety of responses to all organisms, including reduced growth of a species, liver dysfunction, kidney failure, cancer, or outright death.

Fertilizers can have a detrimental effect upon the receiving waters. Nitrogen and phosphorus are major fertilizer nutrients which result in high demands of biological oxygen (BOD) and excessive plant growth.

Under RCRA, hazardous waste management has been characterized as "cradle to the grave" waste management. A firm generating waste is required to determine if such waste is hazardous, and if so, must notify EPA. If the firm chooses to move the waste off-site for treatment or disposal, a paper trail must be maintained by the firm, transporter, and the receiving treatment, storage, or disposal facility. In contrast to RCRA, the national pretreatment standards under the CWA have a different charge—the control of industrial wastewater discharges to the local treatment facility.

There are several differences between the two regulatory programs.

- CWA protects the nation's water by regulating toxic pollutants in wastewater and sludge; RCRA focuses on hazardous wastes in all environmental media.
- CWA primarily regulates 126 toxic pollutants (known as priority pollutants); RCRA regulates 375 hazardous wastes.
- CWA relies heavily on states and local municipalities to build treatment facilities, inspect, and enforce regulations; in RCRA, the federal government retains a much greater role.
- CWA requires the application of all known and available means of treatment. Under RCRA, an operator is given choices with conditions in the management of hazardous wastes.

In spite of the regulatory programs of both RCRA and CWA, nonpoint pollution associated with hazardous materials is extremely difficult to manage, maybe more than any other nonpoint source pollution. The range of sources generating and using hazardous materials is large, encompassing nearly every facet of commercial and private life. Manufacturing and non-manufacturing processes, agricultural chemical use, use and disposal of consumer products, transportation, indoor and outdoor burning, small businesses, and homes all contribute to the release of hazardous wastes. Solvents, oils, paints, metals, and pesticides are some of the hazardous materials found in Washington waters.

SOURCE CONTROL STRATEGY

Pollution prevention is the major focus of the approximately 20 laws governing waste management in the state. In addition, programs and projects related to waste management can be funded through the Local Toxics Control Account. Revenues for this account are derived from the Hazardous Substance Tax in Chapter 88.21 RCW. Since 1992, Ecology has granted over \$80 million to local governments for waste management.

Discharges are prohibited both on land, under Chapters 70.93 and 70.95 et seq RCW, and water, under Chapter 90.48 RCW. Primary enforcement for land discharges is by local health boards. Ecology funds these enforcement positions at the rate of \$100,000 for single county health boards and \$150,000 for multi-county health boards per biennium.

1998 Findings from EPA and NOAA

Findings:

Washington's program includes management measures in conformity with the 6217(g) guidance for pollution prevention.

Rationale:

The State's program submittal describes various programs and laws that address the management measure, especially for the Puget Sound planning area. EPA and NOAA encourage the State to continue efforts toward pollution prevention including in commercial areas.

Management Measure Number VI:

Pollution Prevention

Description from Federal Guidance

Implement pollution prevention and education programs to reduce nonpoint source pollutants generated from the following activities, where applicable:

- (1) The improper storage, use, and disposal of household hazardous chemicals, including automobile fluids, pesticides, paints, solvents, etc.;
- (2) Lawn and garden activities, including the application and disposal of lawn and garden care products, and the improper disposal of leaves and yard trimmings;
- (3) Turf management on golf courses, parks, and recreational areas;
- (4) Improper operation and maintenance of onsite disposal systems;
- (5) Discharge of pollutants into storm drains including floatables, waste oil, and litter;
- (6) Commercial activities including parking lots, gas stations, and other entities not under NPDES purview; and
- (7) Improper disposal of pet excrement.

1998 Findings from EPA and NOAA

"Washington's program includes management measures in conformity with the 6217(g) guidance for pollution prevention. The State's program submittal describes various programs and laws that address the management measure, especially for the Puget Sound planning area. EPA and NOAA encourage the State to continue efforts toward pollution prevention including commercial areas."

Existing Statute(s) and Regulations

Model Litter Control Act (Chapter 70.93 RCW)
Solid Waste Management--Reduction and Recycling--Act (Chapter 70.95 RCW)
Used Oil Recycling Act (Chapter 70.95I RCW)
Hazardous Waste Management Act (Chapter 70.105 RCW)
Model Toxics Control Act (Chapter 173-340 WAC)
Local ordinances

Description of Current Programs in Washington

Activities regarding pollution prevention are generally governed through the waste management acts found in title 70 of the RCW. Primary responsibility for solid waste rests with local governments as well as household and small-business hazardous waste. The primary responsibility for industrial hazardous waste rests with Ecology. About a decade ago or more, the State's waste management laws were amended to focus on pollution prevention as the primary method for waste management, producing one of the nation's leading waste management systems. For example, in 1996, in Washington State:

- 3900 tons of hazardous waste from households was collected at the State's 43 permanent facilities in 90 collection events.
- From these 3900 tons of waste, 1600 tons were recycled and over 1600 additional tons were used for energy recovery.
- 4400 tons of used oil were collected in 570 facilities across the State, and either recycled or used for energy recovery.
- 250 tons of hazardous waste were collected from small businesses.
- The Department of Agriculture Wasted Pesticide Disposal Program has collected more than 940,000 pounds of unusable pesticides since 1988. The Waste program also has educated thousands of pesticide users about waste pesticide minimization over the last 11 years.
- 39 percent of all solid waste in the State was recycled, including 192 tons of yard waste.
- More than one-third of Washington cities offered curbside recycling to their residents.

In addition, many local governments have created innovative programs to further encourage pollution prevention. Creative local programs like Bellevue's "Business Partners" and King County's "EnviroStars" enlighten unwitting polluters, giving technical advice on targeted BMPs to protect water quality. Both these programs are focused on small businesses.

Environmental education programs occur in schools across the state. Volunteer monitoring increases awareness and motivates environmental stewardship at the neighborhood level. Programs such as Water Watchers, Master Gardeners, and Master Watershed Stewards further enhance grassroots efforts in pollution prevention and environmental stewardship. Many larger cities have addressed the proper disposal of pet excrement in their animal control ordinances.

Disposal of waste is prohibited both on the ground and in the waters, including storm drains. Many agencies, both state and local, have authority to enforce these provisions. These laws are discussed in detail in Chapter 3.

Additional needs to meet this management measure

None

Actions to satisfy this management measure

Adequate programs exist to implement this management measure.

Additional Actions to improve water quality

- Fund and implement a program similar to the H₂O Home to Ocean program currently in operation in California, which educates the public about wise use and proper disposal of pesticides. (Ed 3)
- Through the Urban Pesticide Initiative, encourage the development and implementation of programs to reduce the use of pesticides in urban areas. (Urb 18)
- Increase capacity within the State to re-refine used motor oil. (Urb 19)
- Develop and implement a water restoration template for use in watershed plans under chapter 90.82 RCW (Urb23)
- Provide technical assistance to local governments in reducing use of pesticides in high density urban areas. (Urb24)
- Implement spill prevention and response, hazardous waste and contaminated sediments programs to eliminate or reduce risks and impacts on aquatic systems (Urb25)
- Through the Urban Pesticide Initiative, encourage the development and implementation of programs to reduce the use of pesticides in urban areas.(Urb26)
- For abandoned vehicles and illegal dumping, encourage tougher penalties and increased enforcement. Identify special days for free or reduced-fee disposal (Urb27)
- Develop local ordinances to ensure proper disposal of pet and domestic animal wastes (Urb 28)
- Increase capacity within the state to re-refine motor oil. (Urb 29)

Land Transportation Systems

BACKGROUND

Transportation relies on vehicles with internal combustion engines which introduce many contaminants into the biosphere. Transportation is regulated by a number of different agencies: The federal Department of Transportation, Washington State Department of Transportation, and the US EPA, which regulates emissions from all internal combustion engines. Otherwise, counties and cities establish the level of service for urban and rural area transportation management measures. Air pollution comes primarily from vehicles in the form of carbon monoxide, nitrous oxides, particulates, lead, and trace toxins. Rainfall can dissolve these pollutants from the air and turn them into water pollutants. In addition, petroleum products and other substances dropped on the roadway are carried by runoff into the State's waters.

As of 1994, almost 80,000 miles of road in Washington carried 5.2 million vehicles. The Puget Sound area represents the majority of roads and cars. Other larger cities in Washington -- Spokane, Vancouver, and Yakima, for example -- all experience contamination from impervious surfaces, but none so much as the Puget Sound. Roads are divided among the following classifications/ownership:

Table 5.3 Road Ownership in Washington

Classification/Owner	Miles
Federal	6,990
Interstate	764
Arterials/Collectors	6,272
Other State Roads	11,887
County Roads	41,424
City Streets	12,465
Total	79,802

For perspective, that means that each square mile of the State has approximately 1.2 miles of public road running through it. Note: this does not include forest roads regulated under the Forest Practices Act.

NONPOINT POLLUTION ASSOCIATED WITH TRANSPORTATION

Many vehicles routinely leak gasoline, oil, grease, transmission fluid, radiator fluids, etc. People dispose of contaminants along the road. Gasoline, oil and other fluids spilled onto the soil will be washed by rainfall into adjacent surface waters or end up in ground water supplies. They can also be accidentally released into waterways by oil spills and construction activity. These chemicals, most or all of which are toxic, can make this

water undrinkable, kill fish or other wildlife, and poison nearby plant life--destroying or impairing habitat. Such toxics are expensive to remediate.

Grit from the road acts like sediment, clogging streams and suffocating fish breeding areas. Nitrous oxide emissions from cars and airplanes combine with rainfall and contribute to acidification of lakes and streams.

SOURCE CONTROL STRATEGY

The construction and maintenance of roads, highways, and bridges are the joint responsibility of the State Department of Transportation (WDOT), county road departments, and cities. WDOT manages the interstate highways and access points and State highways. Counties manage county roads and cities, city streets.

Table 5.4

Road Mileage and Usage in Washington State, 1996

Road Type	Road Miles	Barrio de Color de la compresión de la conferencia de compresión de la color	Vehicle Miles Traveled (billions)	% of total
Federal	6,617	9.78	Not available	Not available
Interstate	764	.11	13,365	27.43
State Highways	6,274	9.27	14,185	29.11
County Roads	41,094	60.74	8,900	18.27
City Streets	12,910	19.08	12,272	25.19
Total	67,659		48,270	

Most of the state's roads are under county jurisdiction (61percent), but the most usage occurs on roads maintained by the State (57 percent). Roads need maintenance because of natural disasters, freezing and thawing, snow and ice removal, and use. In the year 2000, it is estimated that over \$200 million will be needed to maintain just the State and interstate highways.

For purposes of this analysis, we have referred to the urban stormwater subcategory. Construction and siting of roads, highways, and bridges are governed by the same statutes, regulations and permits as any other construction or development activity. Bridges are also considered substantial shoreline developments.

Like urban construction, road construction and maintenance projects with environmental impacts are subject to the Construction General Permit. All road projects are subject to review under the State Environmental Policy Act (Chapter 43.21C RCW), which requires them to:

- prepare and implement an Erosion and Sediment Control (ESC) Plan
- prepare and implement a Spill Prevention and Emergency Cleanup Plan.

The purpose of the ESC plan is to use BMPs to prevent erosion at the site and sediment delivery to the State's waters. An ESC plan must ensure that:

- exposed and un-worked soils are stabilized in a timely manner
- existing vegetation is preserved where possible
- cut and fill slopes are designed to minimize erosion
- stabilization is adequate to prevent erosion of streams and drainages
- sediment delivery to road surfaces is minimized
- stormwater passes through a retention pond or equivalent BMP
- downstream properties and waterways are protected from impacts of construction
- regular inspections, maintenance, and repair of stormwater management are performed.

In addition, bridges are required to obtain a permit under the Shoreline Management Act (Chapter 90.58 RCW).

The Puget Sound Plan calls for the Washington State Department of Transportation to carry out a program to control runoff from freeways and highways within watersheds. This program is to be consistent with Ecology's Puget Sound Highway runoff rule.

1998 FINDINGS FROM EPA AND NOAA

Findings:

For roads, highways and bridges in the Puget Sound planning area under State jurisdiction, Washington's program includes management measures in conformity with the 6217(g) guidance, and enforceable policies and mechanisms. For roads, highways and bridges not under State jurisdiction and for State roads, highways and bridges outside of the Puget Sound planning area, Washington's program does not include management measures in conformity with the 6217(g) guidance. For local roads, highways and bridges within the Puget Sound planning area and for all roads, highways and bridges outside of the Puget Sound planning area, the State has identified a backup enforceable authority but has not yet demonstrated the ability of the authority to ensure implementation throughout the 6217 management area.

Condition:

Within three years, the State will include in its program management measures for roads, highways and bridges outside of the Puget Sound planning area and for those not under State jurisdiction within the planning area. Within one year, the State will develop a strategy (in accordance with Section XIII, page 14) to implement these management measures throughout the 6217 management area.

Rationale:

For roads, highways and bridges under State jurisdiction in the Puget Sound planning area, Chapter 173-270 of the Washington Administrative Code (WAC) requires the Department of Transportation to develop and adopt a highway manual to manage storm

water for existing and new facilities and rights of way in the Puget Sound basin. This manual meets or exceeds the 6217 (g) management measures.

Outside of the Puget Sound Basin, however, Washington relies on the same policies, programs and laws for the Urban management measures IIA - IIB. The shortcomings of these policies, programs and laws are discussed above in Section IV. A.

EFFORTS TO IMPROVE LAND TRANSPORTATION SYSTEMS IN WASHINGTON

The categories for Land Transportation Systems are:

- 1. Planning, Siting, and Developing Roads and Highways
- 2. Site, Design, and Maintain Bridges
- 3. Road, Highway and Bridge Construction Project Erosion and Sediment Control
- 4. Road, Highway, and Bridge Construction Site Chemical Control
- 5. Roads, Highways, and Bridges Operation and Maintenance
- 6. Roads, Highways, and Bridges Runoff Systems

For purposes of this analysis, please refer to the Urban Areas subcategory called Construction and Development (stormwater runoff). Most of the programs to control nonpoint pollution are the same for this section on Land Transportation Systems.

At this time, Washington does not have adequate programs to meet the above listed management measures. Future development of this aspect of the state's nonpoint source control program is linked to the adoption of the new statewide stormwater manual. This manual is currently out for public review, with adoption planned for the summer of 2000. The actions below will also address endangered species and water quality.

Salmon Recovery Plan

One of the key aspects to the Salmon Recovery Plan is controlling stormwater. Land transportation systems are a significant source of water quality problems. Changes in flow regime and culvert construction have destroyed habitat or limited its availability.

The following Salmon Plan early actions are designed to address transportation problems in the next two years:

- Complete the 20-year Washington Transportation Plan to include environmental sustainability.
- Completely reinvent NEPA pilot projects earlier into project planning to address environmental concerns on a broad geographic area.
- Revise and implement highway runoff manual; undertake stormwater retrofit for transportation projects; implement grant programs.

 Develop and implement a compliance accountability database to track WSDOT permit requirements and mitigation activities.

Other general actions to improve land transportation systems

- Provide road maintenance guidelines to local communities
- Evaluate new ways to improve compliance on DOT construction projects

Management Measure Number VIIA: Planning, Siting, and Developing Roads and Highways

Description from Federal Guidance

Plan, site, and develop roads and highways to:

- 1. Protect areas that provide important water quality benefits or are particularly susceptible to erosion or sediment loss;
- 2. Limit land disturbance such as clearing and grading and cut and fill to reduce erosion and sediment loss; and
- 3. Limit disturbance of natural drainage features and vegetation.

1998 Findings from EPA and NOAA

General findings for Roads, Highways and Bridges can be found in the general discussion of Land Transportation Systems.

Existing Statute(s) and Regulations

State Environmental Policy Act (Chapter 43.21C RCW)
Chapter 197-11 WAC
Water Pollution Control Act (Chapter 90.48 RCW)
Puget Sound Highway Runoff Program
Chapter 173-270 WAC

Description of Current Programs in Washington

This management measure is implemented by the same programs as Urban Management Measure IIC: Site Development. Please refer to that description for the required information. In addition, the requirements of this management measure are addressed through parts B1 and B3 - Environmental Elements (Earth and Water) of the SEPA Checklist found in the preceding Urban category introduction.

Road construction is governed as any other construction activity and falls under the requirements of the state's Construction General Permit and the 1992 Puget Sound Highway Runoff Manual. Though this manual was designed for implementation in Puget Sound counties to meet the requirements of the Puget Sound Water Quality Action Plan, the manual was used widely across the state for other road construction permits.

Ecology enforces water quality through the broad provisions of RCW 90.48.080 and the water quality standards Chapter 173-201A.

Additional needs to meet this management measure

There is a need for a statewide stormwater manual.

Actions needed to implement this management measure:

 Develop a Stormwater Management Strategy which includes updating the stormwater manual and helping local governments implement the manual to address stormwater impacts on habitat and water quality of new development.

Additional Actions to Improve Water Quality

• Revise and implement highway runoff manual; undertake stormwater retrofit for transportation projects; implement grant programs.

Management Measure Number VIIB: Siting, Designing, and Maintaining Bridges

Description from Federal Guidance

Site, design, and maintain bridge structures so that sensitive and valuable aquatic ecosystems and areas providing important water quality benefits are protected from adverse effects. Bridges should be sited to cross watercourses over a straight reach and should avoid crossings over river meanders. Bridges should also be designed to keep the existing flow conveyance, to utilize the zero rise water surface elevations, to place piers and other flow obstructions out of the floodway, and to avoid adverse downstream and upstream channel degradation due to the change in hydraulics.

1998 Finding from EPA and NOAA

General findings for Roads, Highways and Bridges can be found in the general discussion of Land Transportation Systems.

Existing Statute(s) and Regulations

Shoreline Management Act (Chapter 90.58 RCW)

Hydraulic Code (Chapter 75.20 RCW)

Construction Projects in State Waters (Chapter 220-110 RCW)

Public Lands Act (Chapter 79.01 RCW)

Description of Current Programs in Washington

Under the Shoreline Management Act, all bridges are required to obtain a permit prior to construction. Ecology reviews the siting and design of bridges and conditions the permit to protect the shoreline and adjacent water ecosystems. Permit conditions for bridges implement this management measure.

A hydraulic permit is also required if any bridge support or structure is placed in the water, as is the case with most bridges. The Department of Fish and Wildlife issues the permit and may condition it to protect fish spawning and rearing habitat, a beneficial use of many of Washington's waters. Ecology and Fish and Wildlife both have the authority to deny permits if adverse environmental effects will be caused by the project.

A lease from the Department of Natural Resources is required for the use of the aquatic lands that will support bridge. Generally, DNR will include the conditions of the shoreline and hydraulic permit as terms of the lease.

For substantial construction or maintenance activities of, Ecology may require a short-term water quality modification.

A detailed discussion of the interaction of the three laws that manage development of the state's shorelines and near-shore areas is found in Chapter 3, "A Summary of Laws Governing Nonpoint Pollution in Washington State."

Additional needs to meet this management measure

There is a need for a statewide stormwater manual.

Actions needed to implement this management measure:

 Develop a Stormwater Management Strategy which includes updating the stormwater manual and helping local governments implement the manual to address stormwater impacts on habitat and water quality of new development.

Additional Actions to Improve Water Quality

• Revise and implement highway runoff manual; undertake stormwater retrofit for transportation projects; implement grant programs.

Management Measure Number VIIC:

Road, Highway and Bridge Construction Project Erosion and Sediment Control

Description from Federal Guidance

- (1) Reduce erosion and, to the extent practicable, retain sediment onsite during and after construction.
- (2) Prior to land disturbance, prepare and implement an approved erosion control plan or similar administrative document that contains erosion and sediment control provisions.

1998 Finding from EPA and NOAA

General findings for Roads, Highways and Bridges can be found in the general discussion of Land Transportation Systems.

Existing Statute(s) and Regulations

State Environmental Policy Act (Chapter 43.21C RCW)
Chapter 197-11 WAC SEPA Rules
Water Pollution Control Act (Chapter 90.48 RCW)
Chapter 173-200A WAC Standards for Surface Water Quality
Puget Sound Highway Runoff Program
Chapter 173-270 WAC

Description of Current Programs in Washington

This management measure is implemented by the same programs as Urban Management Measure IIIA: Construction Site Erosion and Sediment Control. Please refer to that description for the required information.

Road construction is governed as any other construction activity and falls under the requirements of the state's Construction General Permit and the stormwater manual. The State Environmental Policy Act provides some measures to prevent sediment discharge in construction. All activities which require action by a government body, such as the issuance of a permit, must submit a SEPA checklist to the affected government and Ecology. This includes projects too small to be covered by the Construction General Permit, except the construction of a single-family dwelling.

The checklist must also have a period for public review and comment. If an adverse effect to the environment is noted, such as a possible sediment discharge during construction, an environmental impact statement must be prepared and the subsequent permit may be issued with conditions related to erosion control and sediment retention. The requirements of this management measure are addressed through part B1 -

Environmental Elements (Earth) of the SEPA Checklist found in the preceding Urban category introduction.

RCW 90.48.020 prohibits the discharge of any material that would alter the physical, biological or chemical characteristics of a water body. Sedimentation, which introduces turbidity, is considered a violation of RCW 90.48.020. Many local governments have also enacted sediment control ordinances, with penalties. Both Chapter 90.48 and local ordinances allow for civil penalties. In addition, as previously noted, local governments can issue stop work orders.

WSDOT is preparing a stormwater manual and other related guidance for use statewide. County Roads Administration Board (CRAB) is looking at ways to provide assistance to other government entities such as small towns that are currently not clients.

Additional needs to meet this management measure

There is a need for a statewide stormwater manual

Actions needed to implement this management measure:

 Develop a Stormwater Management Strategy which includes updating the stormwater manual and helping local governments implement the manual to address stormwater impacts on habitat and water quality of new development

Additional Actions to Improve Water Quality

 Revise and implement highway runoff manual; undertake stormwater retrofit for transportation projects; implement grant programs

Management Measure Number VIID:

Road, Highway and Bridge Construction Site Chemical Control

Description from Federal Guidance

- (1) Limit the application, generation, and migration of toxic substances;
- (2) Ensure the proper storage and disposal of toxic materials; and
- (3) Apply nutrients at rates necessary to establish and maintain vegetation without causing significant nutrient runoff to surface water.

1998 Finding from EPA and NOAA

General findings for Roads, Highways and Bridges can be found in the general discussion of Land Transportation Systems.

Existing Statute(s) and Regulations

Hazardous Waste Management Act (Chapter 70.105 RCW)
Chapter 173-303 WAC, Dangerous Waste Regulations
Water Pollution Control Act (Chapter 90.48 RCW)
Model Toxics Control Act (Chapter 173-240 WAC)
Puget Sound Highway Runoff Program
Chapter 173-270 WAC

Description of Current Programs in Washington

Road construction is governed as any other construction activity and falls under the requirements of the state's Construction General Permit and the stormwater manual.

This management measure is implemented by the same programs as Urban Management Measure IIIB: Construction Site Chemical Control. Please refer to that description for the required information.

Additional needs to meet this management measure

There is a need for a statewide stormwater manual.

Actions needed to implement this management measure:

 Develop a Stormwater Management Strategy which includes updating the stormwater manual and helping local governments implement the manual to address stormwater impacts on habitat and water quality of new development

Additional Actions to Improve Water Quality

 Revise and implement highway runoff manual; undertake stormwater retrofit for transportation projects; implement grant programs

Management Measure Number VIIE:Roads, Highways and Bridges Operation and Maintenance

Description from Federal Guidance

Traction materials applied to roadways are ground into fine particles by traffic after snow melt. In some areas, this can be a large source of airborne particulate matter on spring days. Harder traction material, lower application rates, de-icing chemicals, and other methods can be used to lower emissions, and can run off into waterways and waterbodies.

Incorporate pollution prevention procedures in the operation and maintenance of roads, highways and bridges to reduce pollutant loadings to surface waters.

1998 Finding from EPA and NOAA

General findings for Roads, Highways and Bridges can be found in the general discussion of Land Transportation Systems.

Existing Statute(s) and Regulations

Water Pollution Control Act (Chapter 90.48 RCW)
Chapter 173-200A WAC Standards for Surface Water Quality
Puget Sound Water Quality Act (Chapter 90.71 RCW)
Chapter 173-200, Puget Sound Highway Manual
Puget Sound Highway Runoff Program
Chapter 173-270 WAC

Description of Current Programs in Washington:

Counties receive technical assistance from the County Roads Administration Board. CRAB has up-to-date information on latest technology on road construction and maintenance issues.

The Department of Transportation has a state of the art manual on road maintenance designed to address both water quality and fish needs. This manual will likely become the standard by which road surfaces will be managed in Washington and will be made available to local governments for adoption.

Additional needs to meet this management measure

There is a need for a statewide stormwater manual.

Actions needed to implement this management measure:

- Develop a Stormwater Management Strategy which includes updating the stormwater manual and helping local governments implement the manual to address stormwater impacts on habitat and water quality of new development
- Cities and towns do not receive the services provided to counties by CRAB.

Additional Actions to Improve Water Quality

- Revise and implement highway runoff manual; undertake stormwater retrofit for transportation projects; implement grant programs
- Provide road maintenance guidelines to cities and towns.

Management Measure Number VIIF: Roads, Highways, and Bridges Runoff Systems

Description from Federal Guidance

Develop and implement runoff management systems for existing roads, highways, and bridges to reduce runoff pollutant concentrations and volumes entering surface waters.

- (1) Identify priority and watershed pollutant reduction opportunities (e.g., improvements to existing urban runoff control structures); and
- (2) Establish schedules for implementing appropriate controls.

1998 Finding from EPA and NOAA

General findings for Roads, Highways and Bridges can be found in the general discussion of Land Transportation Systems.

Existing Statute(s) and Regulations

Salmon Recovery Act (Chapter 75.46 RCW)
Watershed Planning Act (Chapter 90.82 RCW)
Puget Sound Water Quality Act (Chapter 90.71 RCW)
Chapter 400-12 WAC, Nonpoint Pollution
Puget Sound Highway Runoff Program
Chapter 173-270 WAC
Water Pollution Control Act (Chapter 90.48 RCW)
Chapter 173-200A, Water Quality Standards for Surface Waters

Description of Current Programs in Washington

Road construction is governed as any other construction activity and falls under the requirements of the state's Construction General Permit and the stormwater manual.

This management measure is implemented by the same programs as Urban Management Measure IVA: Existing Development. Please refer to that description for the required information.

Additional needs to meet this management measure

There is a need for a statewide stormwater manual.

Actions needed to implement this management measure:

 Develop a Stormwater Management Strategy which includes updating the stormwater manual and helping local governments implement the manual to address stormwater impacts on habitat and water quality of new development

Additional Actions to Improve Water Quality

• Revise and implement highway runoff manual; undertake stormwater retrofit for transportation projects; implement grant programs

RECREATION

Marinas and Boats

BACKGROUND

Marine recreation includes recreational activities on fresh and salt water; on ocean beaches; along the shores of rivers, streams, and lakes; and the waterfront of Puget Sound. Approximately 72 percent of all Washington households engage in recreational water activities (Washington Outdoors: Assessment and Policy Plan, IAC, 1990). These activities encompass a variety of pursuits: fishing, swimming, SCUBA diving, water skiing, sailing, and boating.

The Interagency Committee for Outdoor Recreation (IAC) presents data from 1987 in its Assessment and Policy Plan 1990-1995 on estimated annual visits for water activities. Washingtonians played on or near the water 23,753,000 times in that year. IAC projects growth for water-related activities by as much as 28 percent by the year 2000.

It has been estimated that 20 percent of Washington's households owns at least one boat. This means 500,000 boats in Washington's waters. People use boats recreationally in Puget Sound, lakes, and major rivers. Power boaters represent 90 percent of the boating public. Most boats are under 16 feet long.

Recreational boating contributes to the state economy; direct and indirect boating sales generated \$895 million and \$2.4 billion respectively in 1986 and provided jobs for an estimated 17,300 people statewide (1988 State of the Sound report by the Puget Sound Water Quality Authority).

The following general information about marinas and boats is summarized from Sea Grant publication WSG-AS 91-06, The Marina Industry in Washington State: Growth and Change, 1981-2000, Robert F. Goodwin, April 1991.

Within Washington's coastal areas, there are (approximately) 450 marinas which provide (approximately) 37,400 wet moorage slips. Most marinas are small, providing less than 200 slips. In contrast, a small number of marinas owned by public port authorities account for a disproportionate number of wet moorage slips - 15,000. Of five marinas having over 1,000 slips, four are owned by port authorities. Over half the total number of marinas are located in the central Puget Sound counties of King (85), Pierce (29), Kitsap (26), and Snohomish (13). The 29 marinas located in San Juan County reflect the popularity of that part of Washington State as a boater destination. Location and size of the fleet appears to be in approximate proportion to population centers.

Although difficult to quantify, Goodwin estimates that the total number of boats in Washington is in the range of 210,000 to 225,000. Current Washington State figures estimate that approximately 338,400 households own 440,000 recreational boats. Of this

number, about 255,593, or 58 percent, are powerboats. About 72 percent of all recreational boats use a gasoline engine of some kind. Canoes and kayaks make up about 13 per cent of the fleet, with roughly 55,268 units.

Most recreational boats, about 299,000 are stored on trailers and hauled to and from launch sites behind a motor vehicle. Statewide, motor boat owners have access to approximately 911 public launch sites (IAC, 1997). This figure generally reflects the additional large number of trailerable boats in the 16 to 26 foot length. The figure indicates a sizable fleet of recreational boats in both the coastal zone and central and eastern Washington, which is projected to increase by another 25,000 to 30,000 boats by the year 2000.

Nonpoint Pollution Associated with Marinas and Boats

There is a high potential for water quality degradation from raw sewage, contaminated bilge water, petroleum products, garbage and trash, paint scraping, and solvents being discharged into state waters by recreational boaters. However, exact numbers are not known.

Contaminants from marinas and recreational boating include sewage (and associated pathogens) and the toxicants contained in petroleum products and other materials used to maintain and repair boats. Discharges of treated and untreated sewage from boats may especially be a problem in smaller bays with poor water circulation, near shellfish beds and public swimming areas, and at marinas.

Since passage of the federal Clean Water Act in 1972, any boat with a toilet installed must have a marine sanitation device (MSD) to treat and/or hold sewage. Effective enforcement of this regulation by the U.S. Coast Guard, however, has proven to be a logistical impossibility. Educational programs are the most promising approach to reducing pollution from boating activities.

Contamination from recreational boats may be greatest at marinas and popular destination areas, where the concentration and disposal of wastes, including treated and untreated sewage, trash, petroleum products, and bilge water, may be significant problems. Marinas themselves, if improperly designed and sited, may cause water quality problems through habitat destruction and restricted flushing. However, marinas, destination sites, and other boating facilities can provide the services which are essential for safe and effective disposal of boat wastes, particularly sewage and petroleum products. Unfortunately, many marinas do not provide sewage pump-outs or recycling facilities.

MANAGEMENT MEASURES FOR MARINAS AND BOATS:

- 1. IIa Marina Flushing
- 2. IIb Water Quality Assessment
- 3. IIc Habitat Assessment
- 4. IId Shoreline Stabilization
- 5. He Stormwater Runoff
- 6. If Fueling Station Design
- 7. Ilg Sewage Facilities
- 8. IIIa Solid Waste
- 9. IIIb Fish Waste
- 10. IIIc Liquid Materials
- 11. IIId Petroleum Control
- 12. IIIe Boat Cleaning
- 13. IIIf Public Education
- 14. IIIg Maintenance of Sewage Facilities
- 15. IIIh Boat Operation

Management measures IIa - IIg are sometimes referred to as the "marina siting and design" measures, and IIIa - IIIh, the "marina operations" measures.

1998 FINDING FROM EPA AND NOAA

Findings:

For the siting and design of marinas, Washington's program includes management measures in conformity with the 6217(g) guidance except for water quality assessment, shoreline stabilization, storm water runoff, and fueling station design. The Washington program includes enforceable policies and mechanisms to ensure implementation of the siting and design management measures except for water quality assessment, shoreline stabilization, stormwater management fueling station design and the sewage facility management measure. For operation and maintenance of marinas, Washington's program does not include management measures in conformity with the 6217(g) guidance. The State has identified a backup enforceable authority but has not yet demonstrated the ability of the authority to ensure implementation throughout the 6217 management area.

Condition:

Within two years, Washington will include in its program: 1) for siting and design of marinas, management measures in conformity with the 6217(g) guidance for water quality assessment, shoreline stabilization, storm water runoff, and fueling station design and enforceable policies and mechanisms to ensure implementation of the water quality assessment, shoreline stabilization, stormwater runoff, fueling station design, and sewage facility management measures throughout the 6217 management area; and 2) for operation and maintenance of marinas, management measures in conformity with the 6217(g) guidance. Within one year, the State will develop a strategy (in accordance

with Section XIII, page 14) to implement the operation and maintenance management measures throughout the 6217 management area.

Rationale:

The marina flushing and habitat assessment measures, are implemented through the Hydraulic Code, which requires projects that "will use, divert, obstruct, or change the natural flow or bed of any of the salt or fresh waters of the state" to obtain state approval to "ensure the proper protection of fish life." Washington's Clean Vessel Program provides a strong funding program to increase the number of marina pump-out facilities, and includes appropriate management measures, but can not ensure implementation unless voluntarily agreed to by the operator.

While the State lists a number of other programs that may have relevance to marinas, it does not provide information indicating that these programs in their totality do or do not achieve conformity with the management measures. Similarly, the State has identified a number of statutes including the Hydraulic Code, Shoreline Management Act, Nonpoint Rule, Oil Spill Prevention and Response Act, and Hazardous Waste Management Act, each of which contain provisions which could be applied to marina design, operation, or maintenance. However, it is unclear how these will be used to ensure implementation of the management measures.

WAC 400-12, which provides for watershed planning to protect the waters of Puget Sound, includes marinas and boats as a Plan topic. The rule promotes education as the key implementation tool, but is discretionary in noting that measures may be developed for many of the types of activities included in the 6217 guidance. In addition, the State supports a boater education program through the State Parks and Recreation Commission. A Boater's Guide is available that discusses rules, regulations and safety requirements. Also, information covers discarding solid and liquid waste materials, boat maintenance, sewage and sanitation, shellfish protection, and a map of pump-out locations. These educational efforts, however, cannot ensure implementation of the measures.

DESCRIPTION OF CURRENT PROGRAMS IN WASHINGTON

The state's Shoreline Management Act, the Hydraulic Project Approval Process, and the State Environmental Policy Act address the management measures for marina siting and design. The SEA process is designed to address all adverse impacts of a project proposal including impacts related to marina flushing, water quality, stormwater management, habitat, shoreline stabilization, and fuel station design.

Additionally, the state-delegated NPDES permit program contains enforceable mechanisms to address stormwater runoff from facilities that conduct hull maintenance activities. In conjunction with the Boatyard General Permit, the Washington Department of Ecology has issued an advisory prohibiting boats painted with sloughing or ablative paints from being scrubbed in the water.

In 1997, Ecology conducted a year-long Marina and Boatyard Technical Assistance outreach campaign, producing a manual to address environmental issues at marinas. The "Resource Manual for Pollution Prevention in Marinas" addresses the concerns outlined in the Nonpoint Plan. The agency has also participated in the annual Clean Boating Campaigns that focus outreach to boaters.

The Washington Sea Grant Small Spill Prevention Education Program is authorized to develop strategies to meet shoreside oil and hazardous substance handling and disposal needs of targeted groups including marinas. Finally, Department of Natural Resources requires leases for development of aquatic lands of the state and these may include conditions for protection as terms of the lease.

An extensive education program for boaters is conducted by the State Parks and Recreation Commission. Along with posters, brochures and similar media, a Boater's Guide is distributed which contains safety tips as well as environmental information. For example, a map showing locations of marine sewage pump-out facilities is included as is a summary of disposal regulations for waste.

Management Measure Number IIA: Marina Flushing

Description from Federal Guidance

Site and design marinas such that tides and/or currents will aid in flushing of the site or renew its water regularly.

1995 Finding from EPA and NOAA

"For the siting and design of marinas, Washington's program includes management measures in conformity with the 6217(g) guidance except for water quality assessment, shoreline stabilization, storm water runoff, and fueling station design. The Washington program includes enforceable policies and mechanisms to ensure implementation of the siting and design management measure except for water quality assessment, shoreline stabilization, stormwater management, fueling station design, and the sewage facility management measure. For operation and maintenance of marinas, Washington's program does not include management measures in conformity with the 6217(g) guidance. The State has identified a backup enforceable authority but has not yet demonstrated the ability of the authority to ensure implementation throughout the 6217 management area.

The marina flushing and habitat assessment measures are implemented through the Hydraulic Code, which requires projects that "will use, divert, obstruct, or change the natural flow or bed of any of the salt or fresh waters of the state" to obtain State approval to "ensure the proper protection of fish life."

Existing Statute(s) and Regulations

Hydraulic Code (Chapter 75.20 RCW)
Chapter 220-110 WAC
Shoreline Management Act (Chapter 90.58 RCW)
Chapter 173-16 RCW, Guidelines for Shoreline Master Programs

Description of Current Programs in Washington

The design criteria established in the Shoreline Master Program Guidelines for marinas includes:

"Shallow-water embayments with poor flushing action should not be considered for overnight and long-term moorage facilities."

WAC 173-16-050(5)(e)

Permits under the Hydraulic Code are issued only if the project ensures "the proper protection of fish life." Generally, a stagnant area where pollutants are accumulating is

not conducive to fish spawning, growth, or habitation. Proper flushing of a marina is necessary to ensure maintenance of appropriate fish habitat.

Additional Needs

None

Actions to implement this management measure

Adequate programs exist to meet this management measure.

Management Measure Number IIB: Water Quality Assessment

Description from Federal Guidance

Assess water quality as part of marina siting and design.

1995 Finding from EPA and NOAA

Findings are the same as for management measure IIA. See page 122.

Existing Statute(s) and Regulations

State Environmental Policy Act (Chapter 43.21A RCW)
Chapter 197-11 WAC
Hydraulic Code (Chapter 75.20 RCW)
Chapter 220-110 RCW

Description of Current Programs in Washington

The State Environmental Policy Act checklist requires project proponents to perform an extensive investigation of impacts on water and aquatic habitat. The Hydraulic Permit does not allow net adverse impacts to aquatic life and ecosystems. The purpose of the hydraulic permit is:

"...to provide protection for all fish life through the development of a State-wide system of consistent and predictable rules. The department will coordinate with other local, State, and federal regulatory agencies, and tribal governments, to minimize regulatory duplication. Pursuant to Chapter 75.20 RCW, this chapter establishes regulations for the construction of hydraulic project(s) or performance of other work that will use, divert, obstruct, or change the natural flow or bed of any of the salt or fresh waters of the State, and sets forth procedures for obtaining a hydraulic project approval (HPA). In addition, this chapter incorporates criteria generally used by the department for project review and conditioning HPAs." WAC 222-110-010

The rules governing hydraulic projects states:

"A hydraulic project application shall be denied when, in the judgment of the department, the project will result in direct or indirect harm to fish life unless adequate mitigation can be assured by conditioning the HPA or modifying the proposal. If approval is denied, the department shall provide the applicant, in writing, a statement of the specific reason(s) why and how the proposed project would adversely affect fish life." WAC 222-110-030(12)

Of special note is the broadness of the definition of fish as a variety of aquatic life, and by implication, including ecosystems which provide habitat for these species:

"Fish life" means all fish species, including but not limited to food fish, shellfish, game fish, and other non-classified fish species and all stages of development of those species." WAC 222-110-020(13)

The hydraulic rules require that a project be halted if a water quality problem occurs during construction.

The State currently monitors water quality in Puget Sound through the Puget Sound Ambient Water Quality Monitoring Program. Local governments also regularly monitor water quality.

Additional Needs

None

Actions to implement this management measure

Adequate programs exist to meet this management measure.

Management Measure Number IIC: Habitat Assessment

Description from Federal Guidance

Site and design marinas to protect against adverse effects on shellfish resources, wetlands, submerged aquatic vegetation, or other important riparian and aquatic habitat areas as designated by local, State, or Federal governments.

1998 Finding from EPA and NOAA

Findings are the same as for management measure IIA.

Existing Statute(s) and Regulations

State Environmental Policy Act (Chapter 43.21A RCW)
Chapter 197-11 WAC
Hydraulic Code (Chapter 75.20 RCW)
Chapter 220-110 RCW
GMA Critical Area Designation and Protection (Chapter 36.70A RCW)

Description of Current Programs in Washington

Same as for Management Measure IIB, described previously

Additional Needs

None

Actions to implement this management measure

Adequate programs exist to meet this management measure.

Management Measure Number IID: Shoreline Stabilization

Description from Federal Guidance

Where shoreline erosion is a nonpoint source pollution problem, shorelines should be stabilized. Vegetative methods are strongly preferred, unless structural methods are more cost effective, considering the severity of wave and wind erosion, offshore bathymetry, and the potential adverse impact of other shorelines and offshore areas.

1998 Finding from EPA and NOAA

Findings are the same as for management measure IIA. See page 122.

Existing Statute(s) and Regulations

Hydraulic Code (Chapter 75.20 RCW) Chapter 222-110 WAC

Description of Current Programs in Washington

Shoreline stabilization is generally not an issue in Washington. Localized problems do occur and are mostly associated with the upland uses that de-stabilize slopes. In many cases, shorelines of the state are starved for sediment and as a result habitat is degraded and beaches are eroding.

Where shoreline stabilization is necessary, hydraulic permits require all projects to address the following as a condition of approval:

"Bio-engineering is the preferred method of bank protection where practicable. Bank protection projects shall incorporate mitigation measures as necessary to achieve no-net-loss of productive capacity of fish and shellfish habitat. The following technical provisions shall apply to bank protection projects:

- (1) Bank protection work shall be restricted to work necessary to protect eroding banks.
- (2) Bank protection material placement waterward of the ordinary high water line shall be restricted to the minimum amount necessary to protect the toe of the bank, or for installation of mitigation features approved by the department.
- (3) The toe shall be designed to protect the integrity of bank protection material.
- (4) Bank sloping shall be accomplished in a manner that avoids release of overburden material into the water. Overburden material resulting from the project shall be deposited so as not to reenter the water.

- (5) Alteration or disturbance of the bank and bank vegetation shall be limited to that necessary to construct the project. All disturbed areas shall be protected from erosion, within seven calendar days of completion of the project, using vegetation or other means. The banks, including riprap areas, shall be revegetated within one year with native or other approved woody species. Vegetative cuttings shall be planted at a maximum interval of three feet (on center), and maintained as necessary for three years to ensure eighty percent survival. Where proposed, planting densities and maintenance requirements for rooted stock will be determined on a site-specific basis. The requirement to plant woody vegetation may be waived for areas where the potential for natural revegetation is adequate, or where other engineering or safety factors preclude them.
- (6) Fish habitat components such as logs, stumps, and/or large boulders may be required as part of the bank protection project to mitigate project impacts. These fish habitat components shall be installed according to an approved design to withstand 100-year peak flows.
- (7) When rock or other hard materials are approved for bank protection, the following provisions shall apply:
- (a) Bank protection material shall be angular rock. The project shall be designed and the rock installed to withstand 100-year peak flows. River gravels shall not be used as exterior armor, except as specifically approved by the department.
- (b) Bank protection and filter blanket material shall be placed from the bank or a barge. Dumping onto the bank face shall be permitted only if the toe is established and the material can be confined to the bank face."

WAC 222-110-050

Additional Needs

Adequate programs exist to meet this management measure.

Actions to implement this management measure

None required

<u>Management Measure Number IIE</u>: Stormwater Runoff

Description from Federal Guidance

Implement effective runoff control strategies which include the use of pollution prevention activities and the proper design of hull maintenance areas.

Reduce the average annual loadings of total suspended solids (TSS) in runoff from hull maintenance areas by 80 percent. For the purposes of this measure, an 80 percent reduction of TSS is to be determined on an average annual basis.

1998 Finding from EPA and NOAA

Findings are the same as for management measure IIA.

Existing Statute(s) and Regulations

Water Pollution Control Act (Chapter 90.48 RCW)
Local implementation of stormwater control measures (Chapter 36.70A.070(1) RCW)

Description of Current Programs in Washington

The NPDES Boatyard General Permit issued by Ecology under RCW 90.48 requires that all commercial businesses engaged in repair of recreational vessels including facilities that conduct "hull maintenance activities" apply for coverage under the permit. The permit requires facilities to follow best management practice to control pollution in stormwater runoff. In addition, Ecology has issued an advisory prohibiting divers from cleaning boats painted with sloughing or ablative paint in the water.

Additional Needs

None

Actions to implement this management measure

Adequate programs exist to meet this management measure.

Management Measure Number IIF: Fuel Station Design

Description from Federal Guidance

Design fueling stations to allow for ease in cleanup of spills.

1998 Finding from EPA and NOAA

Findings are the same as for management measure IIA. See page 122.

Existing Statutes and Regulations

Shoreline Management Act (Chapter 90.58 RCW)

Chapter 173-16 RCW, Guidelines for Shoreline Master Programs

Description of Current Programs in Washington

The Guidelines for Shoreline Master Programs requires that for marinas:

"Special attention should be given to the design and development of operational procedures for fuel handling and storage in order to minimize accidental spillage and provide satisfactory means for handling those spills that do occur." WAC 173-16-050(5)(d)

The State has a program in place through the Washington Sea Grant Program. RCW 90.56.090 establishes the small spill prevention education program. The program targets small spills from fishing vessels, ferries, ships, ports, marinas, and recreational boats. It includes a series of training workshops and the development of education materials.

Additional Needs

None

Actions to implement this management measure

Adequate programs exist to meet this management measure.

Actions to improve water quality

- Examine the needs for a fuel dock education program (Rec 5)
- Examine new approaches to prevent spills from boaters overfilling their gas tanks (Rec 6)

Management Measure Number IIG: Sewage Facilities

Description from Federal Guidance

Install pump-out, dump station, and restroom facilities where needed at new and expanding marinas to reduce the release of sewage to surface waters. Design these facilities to allow ease of access and post signage to promote use by the boating public.

1998 Finding from EPA and NOAA

Findings are the same as for management measure IIA, with the following additional comments:

"Washington's Clean Vessel Program provides a strong funding program to increase the number of marina pump-out facilities, and includes appropriate management measures, but cannot ensure implementation unless voluntarily agreed to by the operator.

In addition, the State supports a boater education program through the State Parks and Recreation Commission. A Boater's Guide is available that discusses rules, regulations and safety requirements. Also, information covers discarding solid and liquid waste materials, boat maintenance, sewage and sanitation, shellfish protection, and a map of pump-out locations. These educational efforts, however, cannot ensure implementation of the measures."

Existing Statute(s) and Regulations

Water Pollution Control Act (Chapter 90.48 RCW)
Recreational Vessels Act, Sewage Disposal Initiative (Chapter 88.12.295)
Puget Sound Water Quality Act (Chapter 90.71 RCW)

Description of Current Programs in Washington

The placement of marine sewage facilities is the responsibility of State Parks, in coordination with Ecology, Health, and Natural Resources, as well as the Puget Sound Action Team and the Interagency Committee for Outdoor Recreation.

There are 106 public and privately owned facilities across the state. Most of the private facilities were placed through a grant program. The <u>Comprehensive Boat Sewage Management Plan for Washington State</u> prepared by the Parks and Recreation Commission analyzes boating traffic patterns in the state and designates locations where additional sewage facilities are needed through criteria established in the plan. If the primary location cannot be secured, alternate locations are designated so that complete coverage of the state's waters are achieved. The actions in the current plan have been completed, and sufficient facilities now exist. In addition, the plan includes a boater education program for marine sewage disposal, and maps of pump-out locations.

Ecology is in the process of updating the Guidelines for Shoreline Master Programs. The new guidelines will be adopted in July, 2000. This update will address boating facilities and requirements for sewage pump-outs and wash-off stations.

Additional Needs

None

Actions to implement this management measure

Adequate programs exist to meet this management measure.

Actions to improve water quality

To enhance public services, the state will:

• Update the <u>Comprehensive Boat Sewage Management Plan for Washington State</u>. (Rec 7)

Management Measure Number IIIA:Solid Waste

Description from Federal Guidance

Properly dispose of solid wastes produced by the operation, cleaning, maintenance, and repair of boats to limit entry of solid wastes to surface waters.

1998 Finding from EPA and NOAA

"For operation and maintenance of marinas, Washington's program does not include management measures in conformity with the 6217(g) guidance. The State has identified a backup enforceable authority but has not yet demonstrated the ability of the authority to ensure implementation for route the 6217 management area."

Existing Statute(s) and Regulations

Model Litter Control Act (Chapter 70.93 RCW)
Solid Waste Management --Reduction and Recycling-- Act (Chapter 70.95 RCW)
Water Pollution Control Act (Chapter 90.48 RCW)
Marine Pollution Act (MARPOL)

Description of Current Program

As noted in Chapter 3, the indiscriminate disposal of solid waste on land or in the water is explicitly prohibited by law. In addition, the Solid Waste--Reduction and Recycling--Management Act requires local governments to provide facilities for the proper recycling and disposal of solid waste.

RCW 70.93.095 requires that marinas with 30 slips or more provide recycling receptacles. This is an enforceable requirement.

The Marine Pollution Act (MARPOL) specifically prohibits the dumping of any plastics from any vessel in navigable waters and restricts the dumping of other types of refuse from boats. All vessels over 26 feet must display a durable placard explaining the disposal regulations. Vessels 40 feet and over must write a waste management plan.

Ecology has authority to take enforcement action against anyone who dumps material into the waters of the state (RCW 90.48.080).

Additional Needs

Adequate programs exist to meet this management measure.

Actions to implement this management measure

None required

Management Measure Number IIIA:

Fish Waste

Description from Federal Guidance

Promote sound fish waste management through a combination of fish-cleaning restrictions, public education, and proper disposal of fish.

1998 Finding from EPA and NOAA

"For operation and maintenance of marinas, Washington's program does not include management measures in conformity with the 6217(g) guidance. The State has identified a backup enforceable authority but has not yet demonstrated the ability of the authority to ensure implementation for the 6217 management area."

Existing Statute(s) and Regulations

Model Litter Control Act (Chapter 70.93 RCW)
Solid Waste Management --Reduction and Recycling-- Act (Chapter 70.95 RCW)
Water Pollution Control Act (Chapter 90.48 RCW)

Description of Current Programs in Washington

The Water Pollution Control Act (Chapter 90.48 RCW) prohibits the discharge of organic or inorganic matter into the waters of the State. This includes fish waste. In addition, there are requirements for fish cleaning stations at certain types of park facilities.

Solid waste in Washington State is defined as:

"...all putrescible and nonputrescible solid and semisolid wastes including, but not limited to, garbage, rubbish, ashes, industrial wastes, swill, sewage sludge, demolition and construction wastes, abandoned vehicles or parts thereof, and recyclable materials." RCW 70.95.030(22)

Under this definition, fish waste is considered a solid waste. Education programs for solid waste are authorized under the Model Litter Control Act. In addition, local governments are required to engage in public education as part of their programs to manage solid waste.

Ecology has authority to take enforcement action against anyone who dumps material into the waters of the state (RCW 90.48.080).

Additional needs

Adequate programs exist to meet this magement measure.

Actions to implement this managemenneasure

None required.

Management Measure Number IIIB: Liquid Materials

Description from Federal Guidance

Provide and maintain appropriate storage, transfer, and containment and disposal facilities for liquid material, such as oil, harmful solvents, antifreeze, and paints, and encourage recycling of these materials.

1998 Finding from EPA and NOAA

For operation and maintenance of marinas, Washington's program does not include management measures in conformity with the 6217(g) guidance. The State has identified a backup enforceable authority but has not yet demonstrated the ability of the authority to ensure implementation for route the 6217 management area.

Existing Statute(s) and Regulations

Used Oil Recycling Act (Chapter 70.95I RCW)
Hazardous Waste Management Act (Chapter 70.105 RCW)'
Chapter 173-303 WAC, Dangerous Waste Regulations
Water Pollution Control Act (Chapter 90.48 RCW)

Description of Current Program

The Water Pollution Control Act (RCW 90.48.080) prohibits the discharge of organic or inorganic matter into the waters of the state. This includes any kind of liquids that can be considered detrimental to the environment.

This requirement parallels the State's Dangerous Waste Regulations (Chapter 173-303) under the Hazardous Waste Management Act (Chapter 70.105 RCW). Any waste that enters the environment or has the potential to enter the environment, such as a spill or discharge to water, becomes dangerous waste, and the site falls under the Dangerous Waste Regulations.

The Hazardous Waste Management Act also requires local governments to provide for the collection and disposal of these wastes through their moderate risk waste programs established in RCW 70.105.220 et seq.

Used oil is also required to be collected and recycled under the Used Oil Recycling Act (Chapter 70.95I RCW). Disposal of used oil by other than recycling is prohibited.

Although the information regarding marinas cannot be separated out, in 1996, the state collected and recycled:

Material	Amount Collected	Amount Energy	Amount Recycled
	(lbs)	Recovery (lbs)	(lbs)
Used oil*	8,792,792	3,166,228	856,876
Solvents	1,120,416	958,468	0
Antifreeze	373,904	. 0	286,590
Latex Paint	1,511,491	o	611,529
Oil Based Paint	1,740,277	1,397,467	61,824
Total	13,538,880	5,522,163	1,816,819

^{*}The disposal of 3,781,141 lbs of used oil went unreported, which probably means it was used for energy recovery onsite or locally. This use does not have to be reported.

Additional Needs

None

Actions to implement this management measure

Adequate programs exist to meet this management measure.

Actions to improve water quality

- Facilitate the management and treatment of contaminated bilgewater at public and private marinas (Rec 9)
- Promote household hazardous waste collection at marinas (Rec 11)

Management Measure Number IIID: Petroleum Control

Description from Federal Guidance

Reduce the amount of fuel and oil from boat bilges and fuel tank air vents entering marina and surface waters.

1998 Findings from EPA and NOAA

For operation and maintenance of marinas, Washington's program does not include management measures in conformity with the 6217(g) guidance. The State has identified a backup enforceable authority but has not yet demonstrated the ability of the authority to ensure implementation throughout the 6217 management area.

Existing Statute(s) and Regulations

Oil and Hazardous Substance Spill Prevention and Response Act (Chapter 90.56 RCW) Water Pollution Control (Chapter 90.48 RCW) Hazardous Waste Management Act (Chapter 70.105 RCW)

Description of Current Program

The state has a program in place through the Washington Sea Grant Program. RCW 90.56.090 establishes the small spill prevention education program. The program targets small spills from fishing vessels, ferries, ships, ports, and marinas, and recreational boats. It includes a series of training workshops and the development of education materials.

The Water Pollution Control Act (Chapter 90.48 RCW) prohibits the discharge of organic or inorganic matter into the waters of the State. This includes any kind of liquids that can be considered detrimental to the environment.

This management measure parallels the State's Dangerous Waste Regulations (Chapter 173-303) under the Hazardous Waste Management Act (Chapter 70.105 RCW). Any waste that enters the environment or has the potential to enter the environment, such as a spill or discharge to water, becomes dangerous waste, and the site falls under the Dangerous Waste Regulations.

Additional Needs

None

Actions to implement this management measure

Adequate programs exist to meet this management measure.

Management Measure Number IIIE: Boat Cleaning

Description from Federal Guidance

For boats that are in the water, perform cleaning operations to minimize, to the extent practicable, the release to surface waters of (a) harmful cleaners and solvents, and (b) paint from in-water hull cleaning.

1998 Findings from EPA and NOAA

For operation and maintenance of marinas, Washington's program does not include management measures in conformity with the 6217(g) guidance. The State has identified a backup enforceable authority but has not yet demonstrated the ability of the authority to ensure implementation for route the 6217 management area.

Existing Statute(s) and Regulations

Water Pollution Control Act (Chapter 90.48 RCW)

Description of Current Program

The NPDES Boatyard General Permit issued by the Ecology under RCW 90.48 requires that all commercial businesses engaged in repair of recreational vessels including facilities that conduct "hull maintenance activities" apply for coverage under the permit. The permit requires facilities to follow best management practice to control pollution in stormwater runoff. Ecology has issued an advisory prohibiting divers from cleaning boats painted with sloughing or ablative paint in the water.

Additional Needs

None

Actions to implement this management measure

Adequate programs exist to meet this management measure.

Actions to improve water quality

To further prevent pollution from boat cleaning, the State will

 Develop additional policies and guidance on cleaning and maintenance practices of boaters (Rec 10)

Management Measure Number IIIF: Public Education

Description from Federal Guidance

Public education/outreach/training programs should be instituted for boaters, as well as marina owner and operators, to prevent the improper disposal of polluting material.

1998 Finding from EPA and NOAA

"For operation and maintenance of marinas, Washington's program does not include management measures in conformity with the 6217(g) guidance. The State has identified a backup enforceable authority but has not yet demonstrated the ability of the authority to ensure implementation for the 6217 management area."

Existing Statute(s) and Regulations

Federal Clean Vessel Act (33 USC 1322)
Model Litter Control Act (Chapter 70.93 RCW)
Solid Waste Management--Reduction and Recycling--Act (Chapter 70.95 RCW)
Hazardous Substance Information Act (Chapter 70.102 RCW)
Puget Sound Water Quality Act (Chapter 90.71 RCW)

Description of Current Program

Each of the above acts provides for public education in the proper management of waste materials:

- The Clean Vessel Act is implemented by the State Parks and Recreation Commission, and includes the publication and distribution of the Boater's Guide. The Boater's Guide provides information and education to boaters on safety and environmental issues, including a map showing the location of all pumpouts.
- The Model Litter Control Act provides for public education in the management and disposal of solid wastes, with preference for reduction and recycling. This act also includes the Recycle Hotline, a free telephone and Internet information service.
- The Solid Waste Management--Reduction and Recycling--Act requires local governments, principally counties and cities, to provide public education on the proper disposal of solid waste.
- The Hazardous Substance Information Office provides information to the public on the identification and proper management of hazardous wastes.

• The Puget Sound Water Quality Act provides for public education by the Puget Sound Action Team, as well as the awarding of grants for public education at the local level.

Additional Needs

None

Actions to implement this management measure

Adequate programs exist to meet this management measure.

Actions to improve water quality

• Coordinate agency educational efforts for boaters on environmentally safe practices, such as for the Clean Boating Week held last year. (Rec 8)

Management Measure Number IIIG: Maintenance of Sewage Facilities

Description from Federal Guidance

Ensure that sewage pump-out facilities are maintained in operational condition and encourage their use.

1998 Finding from EPA and NOAA

"For operation and maintenance of marinas, Washington's program does not include management measures in conformity with the 6217(g) guidance. The State has identified a backup enforceable authority but has not yet demonstrated the ability of the authority to ensure implementation for the 6217 management area."

Existing Statute(s) and Regulations

Federal Clean Vessel Act (33 USC 1322) Recreational Vessels Act, Sewage Disposal Initiative (Chapter 88.12.295)

Description of Current Program

In order to maintain pump-outs in a usable condition, the State Parks and Recreation Commission performs periodic, random inspections of pump-out facilities that are public or have been funded by public monies. Parks and Recreation also surveys marina owners and boaters every few years to ascertain the public perception of the pump-out program.

The Department of Fish and Wildlife has established a toll-free number where, among other actions, citizens and boaters can report non-working pump-out facilities.

Additional Needs

None

Actions to implement this management measure

Adequate programs exist to meet this management measure.

Management Measure Number IIIH: Boat Operation

Description from Federal Guidance

Restrict boating activities where necessary to decrease turbidity and physical destruction of shallow-water habitat.

1998 Finding from EPA and NOAA

"For operation and maintenance of marinas, Washington's program does not include management measures in conformity with the 6217(g) guidance. The State has identified a backup enforceable authority but has not yet demonstrated the ability of the authority to ensure implementation for the 6217 management area."

Existing Statute(s) and Regulations

Local ordinances

Description of Current Program

Many local governments and lake associations have established speed limits on the lakes in Washington in order to prevent shoreline erosion, which creates liability in the form of decreased property values for the landowner where the erosion is taking place.

Local marinas have established speed limits within the marinas in order to prevent damage to facilities and to limit liability on potential damage to other boats. Counties, cities, and ports are concerned with the loss of property, and to protect the health and safety of people.

Apart from the above concerns, Washington has not found boater operation to be a problem for water quality in the state.

Additional Needs

None

Actions to implement this management measure

None

Off-Road Vehicles

In 1971, the Washington State legislature created the All-Terrain Vehicle Program that was subsequently promulgated into Chapter 46.09 RCW. This law, as later amended, established a fund source for the development and management of off-road recreation. The purpose of the law is to define and regulate the use of off-road vehicles, including a mechanism to provide funds for the planning, maintenance, and management of off-road vehicles. The Interagency Committee for Outdoor Recreation is the primary administrator of the fund.

Description from Federal Guidance

The numbers and types of off-road vehicle (ORV) users are not known. There are several federal, State, and local agencies who manage off-road vehicles facilities and trails. The 1993 Washington Off-Road Vehicle Guide lists 34 major ORV recreation areas. Of these, 28 are dispersed areas emphasizing motorcycle trails, and six are intensive use areas.

According to the 1991 Washington State Trails Plan, 15 percent of households use a utility-size 4-wheel drive vehicle off road; 12 percent motorcycle off road; and 10 percent use short-base 3- or 4-wheel all-terrain vehicles. Established trail miles for these activities are, respectively: 200 miles, 2,400 miles and 600 miles.

The number of areas that do not have managed trails is unknown. However, ORV recreation has not been highly regulated. Even with managed trails, there is strong potential for water quality degradation. Major managers of off-road vehicle recreation in Washington are the US Forest Service and the DNR. Both agencies participate in IAC's Non-Highway and Off-Road Vehicle Activities (NOVA) grant program, which funds recreational off-road vehicle facilities. Environmental responsibility is a keystone policy for IAC's NOVA program.

Nonpoint Pollution Associated with Off-Road Vehicles

Most off-road users recreate near water. The potential for disturbing stream banks and causing erosion and sedimentation is high.

There are no findings concerning off-road vehicles.

Additional actions to improve water quality

 Include water quality considerations in regular or required updates of grant funding policy plans (Rec 3)

Other Recreational Activities

Description

Increased recreational use has an impact on the quality of the State's water. However, very little work has been done to measure those impacts. Rivers are popular places to recreate. During salmon runs, Puget Sound rivers experience an explosion of fishermen. Windsurfing, hiking, kayaking, and other recreational activities can have an extreme impact on human health and water quality.

For example, in 1994, a Norwalk virus outbreak occurred in Samish Bay. Norwalk virus is associated with raw human sewage, but the source in this case was never identified. More than 40 people became ill with gastroenteritis and resulted in over 2700 acres of shellfish beds being downgraded to prohibited or restricted for shellfish harvest.

There are no findings for other recreational activities.

Actions to improve water quality

- Investigate impacts on water quality from recreational activities. (Rec 1)
- Establish a system of review than ensures that public lands have adequate toilets and solid waste disposal facilities. (Rec 2)

HYDROMODIFICATION

BACKGROUND

Hydromodification is defined by EPA as the "alteration of the hydrologic characteristics of surface waters, which in turn could cause degradation of water resources." According to EPA, three general types of habitat modification must be addressed by states as they develop their nonpoint programs: 1) channelization and channel modification; 2) dams; and 3) streambank and shoreline erosion.

In Washington, hydromodification activities have significantly influenced the hydrogeology of the state. The construction of dams, tide gates, culverts, bridges, piers, and jetties, as well as the armoring of shorelines and the placement of fill, have helped create drinking water supplies, reduce flood impacts, expand road networks, improve navigation, increase drainage, prevent erosion, and reduce sediment loss. Many of these activities have also led directly or indirectly to adverse impacts on aquatic ecosystems

1998 FINDING FROM EPA AND NOAA

Findings:

Washington's program does not include management measures in conformity with the 6217(g) guidance for channelization, dams, or stream banks and shorelines or enforceable policies and mechanisms to ensure implementation throughout the 6217 management area.

Conditions:

Within three years, Washington will include in its program management measures in conformity with the 6217(g) guidance for channelization, dams, and streambanks and shorelines and enforceable policies and mechanism to ensure implementation throughout the 6217 management area.

Rationale:

Washington's program does not include management measures in conformity with the 6217(g) guidance for channelization, dams, or shorelines and stream banks. The state's submittal identifies several laws that could be used to meet the management measures. These include: (i) the Hydraulic Act, which requires approvals for work that will change the natural flow or bed in waters of the state; (ii) the State Environmental Policy Act, which requires state agencies to ensure that environmental values are given appropriate consideration in state decision-making along with economic and technical considerations; (iii) Chapter 43.21A RCW, which outlines the duties and responsibilities of the Department of Ecology; and, (iv) the Hazardous Waste Cleanup - Model Toxics Control Act, which requires investigation and remedial actions for releases or threatened releases of hazardous substances.

None of these laws, however, specifically address the management measures. In addition, NOAA and EPA have specific concerns that, under the Hydraulic Act,

protection of fish life is the only basis upon which proposed work can be disapproved (@ RCW 75.20.100). The State is thus unable to protect other water quality values that may be affected by hydromodification, such as flows, chemical parameters, or instream and riparian vegetation. Two of the other cited laws (the State Environmental Policy Act and Chapter 43.21A RCW) are general environmental laws that do not indicate how the State might choose to address hydromodification activities.

Stream Channelization and Channel Modification

BACKGROUND

Water is primarily diverted for two uses: drinking water and irrigation water. Many of Washington's older cities rely in whole or part on surface water for drinking water supplies. In addition, numerous irrigation systems in the state use human-built side channels for water diversion and return flows.

Flood control and sediment management are also important in Washington. Floods in 1990 and 1996 incurred damages of millions of dollars. Many of the flood control structures are owned and managed by the US Army Corps of Engineers. Probably the largest structure completed in recent years was the sediment retention dam on the Toutle River, following the eruption of Mount St. Helens.

Siltation is another important problem in Washington. Puget Sound's ports manage more than 50 million tons of cargo each year, at over 200 docks and piers. In addition, Puget Sound is home to much of the Alaskan fishing fleet. Such traffic requires periodic dredging to maintain shipping channels. In some areas, such as the Ports of Seattle and Tacoma, artificial waterways have been constructed to increase available dock space.

DESCRIPTION FROM FEDERAL GUIDANCE

The terms channelization and channel modification refer to the excavation of borrow pits, canals, underwater mining, or other practices that change the dept, width, or location of waterways or embayments in coastal areas.

For the purpose of federal guidance, no distinction is made between the terms river and stream because no definition of either could be found to quantitatively distinguish between the two. There are two management measures for Channelization:

IIa Physical and Chemical Characteristics of Surface Waters IIb Instream and Riparian Habitat Restoration

Specific Federal Guidance for each is discussed in those sections.

NONPOINT POLLUTION ASSOCIATED WITH STREAM CHANNELIZATION

The major concern for Washington is the decrease in fish habitat in altered water bodies. This is especially true for anadromous fish. Stream channelization can cause streambed scouring and hardening, streambank erosion, altered waterways, and altered hydrochemistry. As a result, there are potential changes in pH, metals concentration, dissolved oxygen, instream flow, and nutrient levels.

Mitigation measures, particularly those dealing with channelization and riparian habitat, are partially addressed through wetlands programs and fish and wildlife habitat programs.

One goal for Washington is to ensure that there is no net short-term or long-term loss in aquatic and riparian habitat, and to coordinate federal, state, local and tribal fish and wildlife protection programs.

SOURCE CONTROL STRATEGY

As explained in Chapter 3, three laws govern development at the land-water interface. These are the Hydraulic Code (Chapter 75.20 RCW), the Shoreline Management Act (Chapter 90.58 RCW), and the Public Lands Act (Chapter 79.01 RCW et seq). The Hydraulic Code and the Shoreline Management Act require the permitting of projects at the shoreline. Permits under the Hydraulic Code govern projects or components of projects in the water, and the Shoreline Management Act governs projects or components of projects on land. Permits can be issued with or without conditions, or denied. In addition, a lease is required from DNR, which generally includes the conditions of the permits as terms of the lease.

Implementation of certification or permit requirements rely upon local government involvement. State agencies use existing statutes and regulations to oversee local activities, and to assure that any activity meets state water quality or other instream needs.

SEPA

For proposed hydromodification projects, the <u>State Environmental Policy Act</u> (SEPA) requires an investigation of the impacts of projects on the environment through the SEPA checklist. The checklist provides for an extensive look at the impacts of each project on surface waters.

The regulations implementing the <u>Hydraulic Code</u> state:

"Channel changes/realignments are generally discouraged, and shall only be approved where the applicant can demonstrate benefits or lack of adverse impact to fish life. Channel change/realignment projects shall incorporate mitigation measures as necessary to achieve no-net-loss of productive capacity of fish and shellfish habitat. The following technical provisions shall apply to channel change and channel realignment projects:

When approved, a channel change may occur provided:

- (1) Permanent new channels shall, at a minimum, be similar in length, width, depth, floodplain configuration, and gradient, as the old channel. The new channel shall incorporate fish habitat components, bed materials, meander configuration, and native or other approved vegetation equivalent to or greater than that which previously existed in the old channel.
- (2) During construction, the new channel shall be isolated from the flowing stream by plugs at the upstream and downstream ends of the new channel.

- (3) Before water is diverted into a permanent new channel, the applicant shall complete the following actions:
- (a) Approved fish habitat components, bed materials and bank protection to prevent erosion shall be in place.
- (b) Approved fish habitat components shall be installed according to an approved design to withstand the 100-year peak flows.
- (4) All disturbed areas shall be protected from erosion, within seven days of completion of the project, using vegetation or other means. The banks shall be revegetated within one year with native or other approved woody species. Vegetative cuttings shall be planted at a maximum interval of three feet (on center), and maintained as necessary for three years to ensure eighty percent survival. Where proposed, planting densities and maintenance requirements for rooted stock will be determined on a site-specific basis. The requirement to plant woody vegetation may be waived for areas where the potential for natural revegetation is adequate, or where other engineering or safety factors preclude them.
- (5) Diversion of flow into a new channel shall be accomplished by: (a) First removing the downstream plug; (b) removing the upstream plug; and (c) closing the upstream end of the old channel.
- (6) Filling of the old channel shall begin from the upstream closure and the fill material shall be compacted. Water discharging from the fill shall not adversely impact fish life.
- (7) The angle of the structure used to divert the water into the new channel shall allow a smooth transition of water flow.
- (8) If fish may be adversely impacted as a result of this project, the permittee will be required to capture and safely move food fish, game fish or other fish life (at the discretion of the department) to the nearest free-flowing water. The permittee may request the department to assist in capturing and safely moving fish life from the job site to free-flowing water, and assistance may be granted if personnel are available."

As with all other projects in the state, any hydromodification project requires review under the State Environmental Policy Act. The SEPA checklist has an extensive section to investigate impacts to water and water bodies.

401 Certification and Coastal Zone Consistency Determinations:

Section 401 of the federal Clean Water Act authorizes states to approve, condition, or deny projects that need a federal permit for in-water or in-wetland work. [Federal permits include Section 10 and/or 404 permits from the Corps of Engineers, Section 9 permits

from the Coast Guard, and hydropower licenses from the Federal Energy Regulatory Commission.] The 401 certification covers both the construction and operation of a proposed project. The 401 certification requires compliance with state water quality standards and other appropriate requirements of State law. The conditions of a 401 certification become conditions of the federal approval and accomplishes the following:

- Requires that federal actions (including permit issuance) be consistent with state Coastal Zone Management Programs.
- Applies in Washington's 15 coastal counties and in non-coastal counties where coastal resources (e.g., salmon) may be affected.
- In Washington, CZMP consistency includes compliance with:
 - State Environmental Policy Act
 - State Shoreline Management Act
 - Federal Clean Water Act (i.e., Section 401) and Clean Air Act
 - Energy Facilities Siting Evaluation Council

Ecology reviews proposed projects for consistency with the above regulations and generally issues its CZM Consistency Response along with its 401 Certification, as well as with a coordinated state response on behalf of state resource agencies.

Ecology's review evaluates the effects of proposed projects on water quality, riparian habitat, floodplains, wetland functions and values, stormwater discharges, cumulative impacts, water rights, and other aquatic resource-related elements. A certification decision can include conditions to ensure compliance with the following federal and state regulations:

Federal:

Clean Water Act (various sections)
Coastal Zone Management Act
Clean Air Act
National flood programs

State:

Water and Sediment Quality Standards
SEPA/GMA
Hydraulics Code
Shoreline Management Act
Water resources and water rights
State and local flood programs
Others, as they may apply to a given project

EFFORTS TO IMPROVE HYDROMODIFICATION PROGRAMS IN WASHINGTON

Washington has reviewed the channelization requirements and finds that adequate programs exist to implement the following management measures:

IIa Physical and Chemical Characteristics of Surface Water

IIb Instream and Riparian Habitat Restoration

Washington intends to take the following additional actions to improve water quality and fish habitat:

Salmon Recovery Plan

The following "early" actions are commitments for the FY1999-2001 time period from the Joint Natural Resources Cabinet. They constitute the first two years of implementation activities submitted to NMFS and designed to address salmon recovery needs. These actions provide additional important commitments to improving water quality and cleaning up nonpoint source pollution due to hydromodification activities.

- Provide technical guidance, design criteria and financial assistance to local agencies and groups, including volunteers, to inventory, prioritize and correct barriers and screening problems and prevent new passage problems.
- Develop and implement Integrated Stream Corridor Guidelines, building on the completed Integrated Streambank Protection Guidelines

1. Management Measure Number IIA: Physical and Chemical Characteristics of Surface Waters

Description from Federal Guidance

- (1) Evaluate the potential effects of proposed channelization and channel modification on the physical and chemical characteristics of surface waters in the coastal area.
- (2) Plan and design channelization and channel modification to reduce undesirable impacts; and
- (3) Develop an operation and maintenance program for existing modified channels that includes identification and implementation of opportunities to improve physical and chemical characteristics of surface waters in those channels.

1998 Finding from EPA and NOAA

See general findings for Hydromodification.

Existing Statute(s) and Regulations

State Environmental Policy Act (Chapter 43.21C RCW)
Chapter 197-11-908 WAC
Hydraulic Code (Chapter 75.20 RCW)
Chapter 220-110 WAC
Shoreline Management Act (Chapter 90.58-340 RCW)
Water Pollution Control Act (90.48 RCW)
Chapter 173-201A WAC (Water Quality Standards
Chapter 173-204-400 WAC (Sediment Source Control)

Description of Current Programs in Washington

As with all other projects in the State, any hydromodification requires review under the State Environmental Policy Act. The SEPA checklist has an extensive section to investigate impacts to water and water bodies.

As explained in Chapter 3, three laws govern development at the land-water interface. These are the Hydraulic Code (Chapter 75.20 RCW), the Shoreline Management Act (Chapter 90.58 RCW), and the Public Lands Act (Chapter 79.01 RCW et seq). The Hydraulic Code and the Shoreline Management Act require the permitting of projects at the shoreline. Permits under the Hydraulic Code govern projects or components of projects in the water, and the Shoreline Management Act governs projects or components of projects on land. Permits can be issued with or without conditions, or denied. In addition, a lease is required from DNR, which generally includes the conditions of the permits as terms of the lease.

For project planning and review purposes, SEPA review, 401 certification, and Coastal Zone Determinations are the primary regulatory programs. The ability to address the three components has been adequately described in the Hydromodification overview.

A key to this process is the systematic review by agencies and the public. SEPA provides the framework to address process questions, while the 401 certification and Coastal Zone Determination focus on integration of legal authorities, the most critical of which are compliance with the state Water Quality Standards, Sediment Control Standards, and Hydraulics Code.

The Water Pollution Control Act provides the primary mechanism to protect water quality during the project activity. Department of Ecology visits projects and requires a short-term water quality modification for any project of significant size. For smaller projects, the Department relies on guidance to advise contractors on ways to minimize water quality impacts. Where violations of the water quality standards are documented, Ecology issues a penalty under RCW 90.48.080.

WAC 173-204-400 sets forth a process for managing sources of sediment contamination. The goal of this process is to manage source control activities to reduce and ultimately eliminate adverse effects on biological resources and significant threats to human health resulting from sediment contamination. Permits are required for wastewater, stormwater, and nonpoint source dischargers to surface waters of the state. When permits are violated, Ecology can penalize, close out the permit, or both. Washington's sediment management standards are some of the most rigid rules in the nation.

The Hydraulics Code is enforced through the actions of the Department of Fish and Wildlife. Any project occurring over the surface of the water must have a Hydraulics Project Approval (HPA) before beginning work. The purpose of this permit is to ensure that fish habitat is protected. Fish and Wildlife regularly inspect sites where HPAs are issued and issues civil and criminal penalties where violations have occurred.

Additional Needs to Meet this Management Measure

None needed

Actions to Satisfy this Management Measure

Adequate programs and processes exist to meet this management measure.

Additional Actions to Improve Water Quality

Evaluate the implementation of the Hydraulics code with an eye towards improving its use for water quality protection

2. <u>Management Measure Number IIb</u>: Instream and Riparian Habitat Restoration

Description from Federal Guidance

- (1) Evaluate the potential effects of proposed channelization and channel modification on in-stream and riparian habitat in coastal areas;
- (2) Plan and design channelization and channel modification to reduce undesirable impacts; and
- (3) Develop an operation and maintenance program with specific timetables for existing modified channels that includes identification of opportunities to restore instream and riparian habitat.

1998 Finding from EPA and NOAA

See general findings for hydromodification, page 146.

Existing Statute(s) and Regulations

State Environmental Policy Act (Chapter 43.21C RCW)

Chapter 197-11 WAC

Hydraulic Code (Chapter 75.20 RCW)

Chapter 220-110 WAC

Salmon Recovery Act (Chapter 75.46 RCW)

Shoreline Management Act (Chapter 90.58-340 RCW)

Water Pollution Control Act (90.48 RCW)

Chapter 173-201A WAC (Water Quality Standards

Chapter 173-204-400 WAC (Sediment Source Control)

Description of Current Programs in Washington

As with all other projects in the state, any hydromodification requires review under the State Environmental Policy Act. The SEPA checklist has an extensive section to investigate impacts to water and water bodies.

As explained in Chapter 3, three laws govern development at the land-water interface. These are the Hydraulic Code (Chapter 75.20 RCW), the Shoreline Management Act (Chapter 90.58 RCW), and the Public Lands Act (Chapter 79.01 RCW et seq). The Hydraulic Code and the Shoreline Management Act require the permitting of projects at the shoreline. Permits under the Hydraulic Code govern projects or components of projects in the water, and the Shoreline Management Act governs projects or components of projects on land. Permits can be issued with or without conditions, or denied. In addition, a lease is required from DNR, which generally includes the conditions of the permits as terms of the lease.

For project planning and review purposes, SEPA review, 401 certification, and Coastal Zone Determinations are the primary regulatory programs. The ability to address the three components has been adequately described in the Hydromodification overview.

A key to this process is the systematic review by agencies and the public. SEPA provides the framework to address process questions, while the 401 certification and Coastal Zone Determination focus on integration of legal authorities, the most critical of which are compliance with the state Water Quality Standards, Sediment Control Standards, and Hydraulics Code.

Numerous instream and riparian restoration programs are currently underway in Washington. The biggest of these is directed under the Salmon Recovery Act (Chapter 74.46 RCW). Limiting Factors Analysis are being carried out by local watershed groups across the state. Once completed, these areas are eligible for a variety of state and federal funds for restoration activities.

As a result of a TMDL analysis, many riparian restoration projects continue to be designed. Since temperature is almost always a factor in fish survival, shade restoration will continue to be a big program across the state.

The Water Pollution Control Act provides the primary mechanism to protect water quality during the project activity. Department of Ecology visits projects and requires a short-term water quality modification for any project of significant size. For smaller projects, the Department relies on guidance to advise contractors on ways to minimize water quality impacts. Where violations of the water quality standards are documented, Ecology issues a penalty under RCW 90.48.080.

WAC 173-204-400 sets forth a process for managing sources of sediment contamination. The goal of this process is to manage source control activities to reduce and ultimately eliminate adverse effects on biological resources and significant threats to human health resulting from sediment contamination. Permits are required for wastewater, stormwater, and nonpoint source dischargers to surface waters of the state. When permits are violated, Ecology can penalize, close out the permit, or both. Washington's sediment management standards are some of the most rigid rules in the nation.

The Hydraulics Code is enforced through the actions of the Department of Fish and Wildlife. Any project occurring over the surface of the water must have a Hydraulics Project Approval (HPA) before beginning work. The purpose of this permit is to ensure that fish habitat is protected. Fish and Wildlife regularly inspect sites where HPAs are issued and issues civil and criminal penalties where violations have occurred.

Additional Needs to Meet this Management Measure

None needed

Actions to Satisfy this Management Measure

Adequate programs and processes exist to meet this management measure.

Additional Actions to Improve Water Quality

Implement the work plan in the Salmon Habitat and Restoration Standards and Guidelines.

Dams

Background

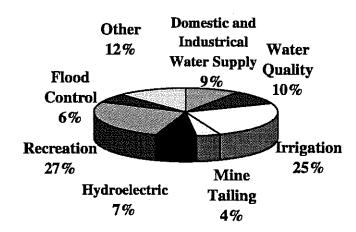
Most of the 1025 dams in Washington were built during the first half of this century, primarily for economic development -- irrigation, domestic water supply, and electric power. In the last two years, the rate of construction has significantly slowed. Most new projects are small dams for stormwater detention in urban areas, and storage lagoons built for treatment of domestic, agricultural, industrial and mining waste.

There are currently 1,100 dams in Washington that are regulated by Ecology's Dam Safety Section. The State does not regulate dams owned by the federal government. The number of dams continues to increase as 10 to 15 new dams are constructed each year.

Currently, no large dams are being built on significant streams and rivers. Fifty percent of current construction work is for repairs and enhancements on existing dams. About 10 new dams are built each year, typically located off-channel or on small streams. Most projects are either reservoir projects for water quality protection, or small dams built for flood control/stormwater detention in urban areas.

The figure below identifies the types of dams developed in Washington.

Types of Dams in Washington State



Description from Federal Guidance

Dams are divided into the following classes: run-of-river, mainstem, transitional, and storage. Each classification has particular problems that contribute to nonpoint source pollution.

The siting of dams can result in the inundation of wetlands, riparian areas, and forestland in upstream areas of the waterways. Dams either reduce or eliminate downstream flooding needed by some wetlands and riparian areas. Dams can also impede or block migration routes of fish.

There are three management measures for dams:

- 1. IIIa Dams--Erosion and Sediment Control
- 2. IIIb Dams--Chemical and Pollutant Control
- 3. IIIc Dams--Protection of Surface Water Quality

Specific federal guidance for each will be discussed in those individual sections.

Nonpoint Pollution Associated with Dams

There are a variety of nonpoint problems associated with dams. Construction activities from dams can cause increased turbidity and sedimentation in the waterway resulting from vegetation removal, soil disturbance, and soil rutting. Fuel and chemical spills and the cleaning of construction equipment have the potential for creating nonpoint source pollution.

The operation of dams can also generate a variety of types of nonpoint source pollution in surface waters. Controlled releases from dams can change the timing and quantity of freshwater inputs into coastal and fresh water. Dams operations may lead to reduced downstream flushing, which in turn, may lead to increased load of BOD, phosphorus, and nitrogen; changes in pH; and the potential for increased algal growth. Lower instream flows and lower peak flows associated with controlled releases from dams can result in sediment deposition in the channel several miles downstream of the dam.

Source Control Strategy

The source control strategy for dams is found in the discussion of each management measure.

1. Management Measure Number IIIA:

Dams--Erosion and Sediment Control

Description from Federal Guidance

- (1) Reduce erosion and, to the extent practicable, retain sediment onsite during and after construction;
- (2) Prior to land disturbance, prepare and implement an approved erosion and sediment control plan or similar administrative document that contains erosion and sediment control provisions.

Finding

Please see general findings for Hydromodification.

Existing Statute(s) and Regulations

State Environmental Policy Act (Chapter 43.21C RCW)

Chapter 197-11 WAC

Hydraulic Code (Chapter 75.20 RCW)

Chapter 220-110 WAC

Salmon Recovery Act (Chapter 75.46 RCW)

Shoreline Management Act (Chapter 90.58-340 RCW)

Water Pollution Control Act (90.48 RCW)

Chapter 173-201A WAC (Water Quality Standards

Chapter 173-204-400 WAC (Sediment Source Control)

Department of Ecology (Chapter 43.21A RCW)

Department of Ecology's Draft Stormwater Manual for Washington State

Description of Current Program

Dam construction requires a myriad of permits from the Construction General Permit to a Hydraulic Permit to a Shoreline Permit. The Construction General Permit requires sites to:

- Undergo SEPA review
- Prepare and implement a Erosion and Sediment Control (ESC) Plan
- Prepare and implement a Spill Prevention and Emergency Cleanup Plan

The purpose of the ESC plan is to use BMPs to prevent erosion at the site and sediment delivery to the state's waters. An ESC plan must ensure that:

- Exposed and unworked soils are stabilized in a timely manner
- Existing vegetation is preserved where attainable
- Cut and fill slopes are designed to minimize erosion
- Stabilization is adequate to prevent erosion of water conveyances and streams
- Sediment delivery to road surfaces is minimized

- Stormwater will pass through a retention pond or equivalent BMP
- Downstream properties and waterways are protected from impacts of construction
- Regular inspections, maintenance, and repair of stormwater management facilities are performed.

Permits can be denied if an appropriate sediment management plan is not part of the proposal. The act establishing the Department of Ecology, Chapter 43.21A RCW requires periodic inspections of all dams within the state. RCW 90.48.080 prohibits the discharge of any material that would alter the physical, biological or chemical characteristics of a water body. Since sediment alters the physical characteristics of water by introducing turbidity, it falls under the prohibition. Thus, a sediment discharge is considered a violation of RCW 90.48.020.

Best Management Practices for stormwater management, including erosion and sediment control, have been established through the new state-wide stormwater manual: "Stormwater Management in Washington State." This manual, currently under public review, sets BMPs for all construction and development within the state. All construction and development sites are required to prepare a plan demonstrating how the minimum requirements of the manual will be met. The manual should be adopted by summer 2000.

The new stormwater manual addresses construction for sites over one acre. For projects with sites greater than one acre, or which will have more than 5000 square feet of impervious surface after the project is finished, Ecology reviews the plan. For smaller projects, review of the plan is left to local governments. Ecology encourages local governments to verify compliance with the stormwater requirements in conjunction with the inspection that results in the Permit to Occupy. BMP implementation is also required in all municipal and construction general permits as well as individual industrial permits.

Additional Actions Needed

None needed

Actions to Satisfy this Management Measure

The state has adequate programs to satisfy this management measure.

Additional Actions to Improve Water Quality

Adopt the new stormwater manual to provide improved sediment control BMPs.

2. Management Measure Number IIIB: Dams--Chemical and Pollutant Control

Description from Federal Guidance

- (1) Limit application, generation, and migration of toxic substances;
- (2) Ensure the proper storage and disposal of toxic materials; and
- (3) Apply nutrients at rates necessary to establish and maintain vegetation without causing significant nutrient runoff to surface waters.

Findings from EPA and NOAA

Please see general findings for Hydromodificatin.

Existing Statute(s) and Regulations

Used Oil Recycling Act (Chapter 70.95 RCW)

Hazardous Waste Management Act (Chapter 70.105 RCW)

Dangerous Waste Regulations (Chapters 173-303 WAC)

Water Pollution Control Act (Chapter 90.48 RCW)

Water Quality Standards for Surface Waters (Chapter 173-201A WAC)

Description of Current Program

Used oil is required to be collected and recycled under the Used Oil Recycling Act (Chapter 70.951 RCW). Disposal of used oil by other than recycling is prohibited. Local governments implement waste reduction and recycling at the county level.

With the exception of used oil, the Hazardous Waste Management Act (Chapter 70.105RCW) governs the storage, transfer, and disposal of toxic materials the Dangerous Waste Regulations, Chapter 173-303 RCW. Local governments develop and implement Hazardous Waste Management Plans approved by Ecology.

This requirement parallels the State's Dangerous Waste Regulations (Chapter 173-303) under the Hazardous Waste Management Act (Chapter 70.105 RCW). Any waste that enters the environment or has the potential to enter the environment, such as a spill or discharge to water, becomes dangerous waste, and the site falls under the Dangerous Waste Regulations.

The Water Pollution Control Act provides the primary mechanism to protect water quality during the project activity. Ecology administers laws and regulations pertaining to surface water quality, including nutrient runoff. Ecology visits projects and requires a short-term water quality modification for any project of significant size. For smaller projects, the Department relies on guidance to advise contractors on ways to minimize water quality impacts. Where violations of the water quality standards are documented, Ecology issues a penalty under RCW 90.48.080.

Additional Actions Needed

None needed

Actions to Satisfy this Management Measure

The state has adequate programs and processes in place to meet this management measure.

Additional Actions to Improve Water Quality

No additional actions are needed.

Management Measure Number IIIC: Protection of Surface Water Quality and Instream and Riparian Habitat

Description from Federal Guidance

Develop and implement a program to manage the operation of dams in coastal areas that includes an assessment of:

- (1) Surface water quality and in-stream and riparian habitat and potential for improvement and
- (2) Significant nonpoint source pollution problems that result from excessive surface water withdrawals.

Findings from EPA and NOAA

Please see general findings for Hydromodification.

Existing Statute(s) and Regulations

Salmon Recovery Act (Chapter 75-46 RCW)
Watershed Planning Act (Chapter 90.82)
Water Pollution Control Act (Chapter 90.48 RCW)
Hydraulic Code (Chapter 75.20 RCW)
Minimum Water Flows and Levels (Chapter 90.22 RCW)
Water Quality Standards for Surface Waters (Chapter 173-201A WAC)

Description of Current Program

The Watershed Planning Act requires local government to assess the impacts of current water withdrawals and recommends the establishment of instream flows to protect aquatic ecosystems. In addition, assessments of water quality within the watershed are authorized, and are generally being done. Even though it is a voluntary program, locals must address certain requirements. The Watershed Planning Act is being systematically applied statewide. The highest priority watersheds, those that are being impacted through administration of the Endangered Species Act, have received the first funding packages. The Act is being administered by the Department of Ecology, with required participation from other state resource agencies. Currently, 39 out of 62 Water Resource Inventory Areas have begun the planning process.

The Salmon Recovery Act requires local conservation districts to assess instream and riparian habitat and work with local governments to design and implement projects to repair damaged habitat. The Governor has convened a Salmon Recovery Team to develop mechanisms to restore instream flows and to minimize pollution problems and restore riparian habitat. Discussion on page 4-1 addresses the scope of this effort. This plan has adopted a number of Salmon Strategy Actions that address habitat, flow, and pollution control.

The Department of Ecology's Water Resources Program is active in setting instream flows for the state's surface and ground water. Any water withdrawals are permitted by the Water Resources Program.

Additional Needs

None

Actions to Satisfy this Management Measure

The State has adequate programs and processes in place to meet this management measure.

Additional Actions to Improve Water Quality

No new actions are needed.

Streambank and Shoreline Erosion

Management Measure Number IVA: Eroding Streambanks and Shorelines

Description from Federal Guidance

- (1) Where streambank or shoreline erosion is a nonpoint source pollution problem, streambanks and shorelines should be stabilized. Vegetative methods are strongly preferred unless structural methods are more cost-effective, considering the severity of wave and wind erosion, offshore bathymetry, and the potential adverse impact on other streambanks, shorelines, and offshore areas.
- (2) Protect streambank and shoreline features with the potential to reduce NPS pollution.
- (3) Protect streambanks and shorelines from erosion due to uses of either the shorelands or adjacent surface waters.

Findings from EPA and NOAA

Please see general findings for Hydromodification.

Existing Statute(s) and Regulations

Hydraulic Code (Chapter 75.20 RCW)
Chapter 220-110 WAC
Salmon Recovery Act (Chapter 75.46 RCW)
Shoreline Management Act (Chapter 90.58 RCW)

Description of Current Programs in Washington

Across the state, erosion of streambanks and shorelines is not considered a significant water quality problem, except in areas where manmade disturbances have contributed to alteration of flows and currents. In general, stabilization work has resulted in deprivation of sediment to streams and shorelines. This reduction in sediments has had disastrous effects on fish and shellfish production.

Much of the stream restoration work currently underway in Washington is focused on bringing back hydraulic function in the watershed. In many cases this involves removing hard structures and allowing streams to move within their channel migration zones.

The Salmon Recovery Act requires the Conservation Commission to assess instream and riparian habitat, and work with local governments to design and implement projects to repair damaged habitat. In cases where sediment from eroding banks and shorelines is causing habitat loss, projects are designed to stabilize the site. All projects are reviewed by Department of Fish and Wildlife and must have an HPA if working over the water.

In addition, the regulations for hydraulic permits require shoreline stabilization as a condition of approval:

"Bio-engineering is the preferred method of bank protection where practicable. Bank protection projects shall incorporate mitigation measures as necessary to achieve no-net-loss of productive capacity of fish and shellfish habitat. The following technical provisions shall apply to bank protection projects:

- (1) Bank protection work shall be restricted to work necessary to protect eroding banks.
- (2) Bank protection material placement waterward of the ordinary high water line shall be restricted to the minimum amount necessary to protect the toe of the bank, or for installation of mitigation features approved by the department.
- (3) The toe shall be designed to protect the integrity of bank protection material.
- (4) Bank sloping shall be accomplished in a manner that avoids release of overburden material into the water. Overburden material resulting from the project shall be deposited so as not to reenter the water.
- (5) Alteration or disturbance of the bank and bank vegetation shall be limited to that necessary to construct the project. All disturbed areas shall be protected from erosion, within seven calendar days of completion of the project, using vegetation or other means. The banks, including riprap areas, shall be revegetated within one year with native or other approved woody species. Vegetative cuttings shall be planted at a maximum interval of three feet (on center), and maintained as necessary for three years to ensure eighty percent survival. Where proposed, planting densities and maintenance requirements for rooted stock will be determined on a site-specific basis. The requirement to plant woody vegetation may be waived for areas where the potential for natural revegetation is adequate, or where other engineering or safety factors preclude them.
- (6) Fish habitat components such as logs, stumps, and/or large boulders may be required as part of the bank protection project to mitigate project impacts. These fish habitat components shall be installed according to an approved design to withstand 100-year peak flows.
- (7) When rock or other hard materials are approved for bank protection, the following provisions shall apply:
- (a) Bank protection material shall be angular rock. The project shall be designed and the rock installed to withstand 100-year peak flows. River gravels shall not be used as exterior armor, except as specifically approved by the department.
- (b) Bank protection and filter blanket material shall be placed from the bank or a barge. Dumping onto the bank face shall be permitted only if the toe is established and the material can be confined to the bank face."

WAC 222-110-050

The Shoreline Management Act, as an act governing land use, requires compatible uses of adjacent properties. Shorelands are divided into areas of differing environmental designation, much like zoning under standard land use practices.

Additional Needs

None

Actions to Satisfy this Management Measure

The State has adequate programs and processes in place to address this management measure.

Additional Actions to Improve Water Quality

- Provide technical guidance, design criteria and financial assistance to local agencies and groups, including volunteers, to inventory, prioritize and correct barriers and screening problems and prevent new passage problems
- Develop and implement Integrated Stream Corridor Guidelines, building on the completed Integrated Streambank Protection Guidelines

LOSS OF AQUATIC ECOSYSTEMS

BACKGROUND

Wetlands provide essential habitat for feeding, nesting, cover and breeding for birds, fish, amphibians, and reptiles. The Department of Fish and Wildlife lists over 175 wildlife species that use wetlands for primary feeding habitat and 140 species that use them for primary breeding habitat. At least one-third of Washington's threatened and endangered species require wetlands to survive.

The Puget Sound Plan identified other important benefits for human communities, including the slowing and storage of flood water, cleansing water of certain pollutants, recharging ground water and serving as an outlet for ground water to recharge streams (ground water discharge), and providing recreational areas. In their natural state, wetlands help decrease the need for costly stormwater facilities and flood protection measures such as levees and dikes. Continued habitat loss due to hardening of marine shorelines is still a major concern. New State shoreline guidelines to address this issue are due out soon.

Riparian areas are also areas of abundant biota. In addition, the riparian zone protects the adjacent stream or river. The canopy of the riparian area provides shade to cool the stream, nutrients from exfoliation, and habitat for insects and other life forms important in the aquatic food web. The riparian area also prevents or lessens erosion and sedimentation.

NONPOINT POLLUTION ASSOCIATED WITH LOSS OF AQUATIC ECOSYSTEMS

Damage or destruction of riparian areas is a large cause of impairment to the streams in the state. Many of these streams once hosted abundant salmon runs and other fish and wildlife. Deforestation of the foothills and development of the lowlands and valleys of the coastal zone have caused environmental degradation.

Wetlands and riparian areas can play a critical role in reducing nonpoint source pollution, by intercepting surface runoff, subsurface flow, and certain ground water flows. Their role in water quality improvement includes processing, removing, transforming, and storing pollutants such as sediment, nitrogen, phosphorus, and certain heavy metals. Wetlands and riparian areas buffer receiving waters from the effects of pollutants, or they prevent the entry of pollutants into receiving waters.

The functions of wetlands and riparian areas include water quality improvement, aquatic habitat, stream shading, flood attenuation, shoreline stabilization, and ground water exchange. Wetlands and riparian areas typically occur as natural buffers between uplands and adjacent water bodies. Loss of these systems allows for a more direct contribution of nonpoint source pollution to receiving waters (USEPA, 1993).

1998 FINDING BY NOAA AND EPA

Findings:

Washington's program does not include management measures in conformity with the 6217(g) guidance. Washington has identified enforceable authorities, as well as recommended actions in the State's Wetlands Integration Strategy, which could implement the management

measures, but has not yet demonstrated the ability of the authorities or its programs to ensure implementation of the management measures throughout the 6217 management area.

Condition:

Within three years, Washington will include in its program management measures in conformity with the 6217(g) guidance to protect wetlands and riparian areas, promote restoration of wetlands and riparian areas and promote the use of vegetative treatment systems. Within one year, Washington will develop a strategy (in accordance with Section XIII, page 14) to implement the wetlands, riparian areas and vegetated treatment systems management measures throughout the 6217 management area.

Rationale:

Washington's program does not include management measures in conformity with the 6217(g) guidance for protection of wetlands and riparian areas, for promoting restoration of wetlands and riparian areas, or for promoting the use of vegetated treatment systems. The state's program submittal identifies several mechanisms that could be used for implementing the management measures. These include: (i) the Hydraulic Act and (ii) the State Environmental Policy Act (discussed in the preceding section) (iii) the Shoreline Management Act, which requires master plans be developed by local governments to provide an objective guide for regulating the use of shorelines; (iv) the Growth Management Act, which requires regulations for new development to assure conservation of agricultural and forest resources; and, (v) the Water Pollution Control Act, which provides for water quality standards for wetlands.

NOAA and EPA recognize that these mechanisms, along with the recommendations contained in the Wetlands Integration Strategy (SWIS) have potential to ensure some degree of implementation of the management measures; however, the state's submittal provides no details on how these mechanisms will be utilized to achieve implementation of the management measures. The state needs to demonstrate the ability of its authorities, programs, and initiatives to ensure implementation of management measures for wetlands, riparian areas, and vegetated treatment systems throughout the 6217 management area.

DESCRIPTION OF CURRENT PROGRAM

There are three management measures in this category:

IIa Protect Wetlands and Riparian Areas

IIb Restore Wetlands and Riparian Areas

IIc Vegetative Treatment Systems

In addition to wetlands and riparian areas, we will present a discussion on lakes and estuaries in this section.

Washington believes that existing state and local programs meet the requirements for the three management measures described above.

EFFORTS TO IMPROVE AQUATIC ECOSYSTEM PROTECTION PROGRAMS IN WASHINGTON

The overarching goal of the wetlands program is to ensure no net loss of the functions and acreage of wetlands. The program calls upon local jurisdictions to restore and protect wetlands through a variety of mechanisms, including land use controls, acquisition and preservation programs, and restoration projects, in order to preserve habitat, help with flood control, and protect water quality. The program also calls for inventories, education, research, and interagency coordination.

In 1986, wetlands were regulated at the federal level primarily through Section 404 of the Clean Water Act, administered by the U.S. Army Corps of Engineers (COE) and the Environmental Protection Agency (EPA). At the state level, the Hydraulic Code and Shoreline Management Act were the primary regulations for activities involving wetlands. In some areas, local regulations also applied. The State Environmental Policy Act (SEPA), Coastal Zone Management Act and Clean Water Act Section 401 certifications also were used to some extent to review activities that may affect wetlands. Improper interpretation of regulations, imperfect science in estimating impacts, inappropriate mitigation, and the exemption of many land uses from regulation all contribute to further loss and decline.

Several efforts to enact a law to require state wetland standards failed. Subsequently, the 1990 Growth Management Act (GMA) and its amendments required that local governments identify and protect critical areas, including wetlands, within their jurisdiction. Several problems arose with the creation of local ordinances. Each local government adopts its own ordinances. The Puget Sound Plan Water Quality Plan contains specific elements addressing wetlands in the Puget Sound Region. Other areas of Washington state do not.

Although the GMA increased local government involvement in wetlands regulations, it did not decrease the involvement of state and federal agencies. The additional requirements of local government added confusion to an already complex permit system. In 1992, the Corps of Engineers adopted regional conditions for nationwide permits, which established more restrictive regulations for the discharge of dredged or fill material which would affect more than one acre of headwaters or isolated wetlands. Regional conditions on a new round of Corps nationwide permits are currently being discussed.

Water quality protection for wetlands is authorized under the Washington State Water Pollution Control Act (RCW 90.48.020) and the antidegradation policy (WAC 173-201A-070). Although Washington state has not developed specific standards for wetlands in the water quality standards, a 1993 Superior Court decision clarified Ecology's authority over wetlands as waters of the state. These policies state that discharges to wetlands must meet water quality standards. Ecology is developing policies dealing with inadvertent pollution of wetlands caused by evasive volume and flows of discharges.

FINAL: Washington's Nonpoint Source Management Plan

In response to the confusion surrounding wetlands protection and the need to develop a better system of regulation, EPA provided a grant to the departments of Ecology and Community, Trade and Economic Development (DCTED) for the State Wetland Integration Strategy (SWIS). The SWIS project gathered many stakeholders into six separate workgroups to address the most pressing issues surrounding wetlands protection - economics, education, regulatory reform, planning, technical issues and non-regulatory programs. Recommendations from the work groups are steering changes to improve the current system.

Wetlands protection continues to be complex, as new issues of water quality and quantity in wetlands arise. Growth and development continue to demand the conversion of natural landscapes for buildings, parking lots and other uses, making the protection of wetland's function a challenging task.

Management Measure Number IIA: Protect Wetlands and Riparian Areas

Description from Federal Guidance

Protect from adverse effects wetlands and riparian areas that are serving a significant NPS abatement function and maintain this function while protecting the other existing functions of these wetlands and riparian areas as measured by characteristics such as vegetative composition and cover, hydrology of surface water and ground water, geochemistry of the substrate, and species composition.

1998 Findings from EPA and NOAA

The findings can be found in the general description of Loss of Aquatic Ecosystems.

Existing Statute(s) and Regulations

Growth Management Act (Chapter 36.70A RCW)
State Environmental Policy Act (Chapter 43.21C RCW)
Chapter 197-11 WAC
Environmental Mitigation (Chapter 90.74 RCW)
Shoreline Management Act (Chapter 90.58 RCW)

Description of Current Programs in Washington

The State Environmental Policy Act checklist has an extensive section on the impacts of projects on water bodies, especially wetlands and riparian areas. State policy requires that there be no net loss of environmental benefit from these areas, and requires substantial mitigation. Permits under the Hydraulic Code and Shoreline Management Act often contain conditions regarding protection and mitigation of wetlands and riparian areas. Further clarification and requirements are found in the Environmental Mitigation Act.

The Growth Management Act requires local governments to designate and protect critical areas, which included wetlands and riparian areas. Ordinances protecting these areas from degradation are also required of each city and county. In addition, county commissioners are authorized to purchase sensitive lands, including wetlands and riparian areas, for conservation purposes in RCW 36.32.570.

The Department of Community Trade and Economic Development oversees implementation of the Growth Management Act. However, the act itself is implemented at the local level. Also implemented at the local level is the SEPA, Shoreline Management, and environmental mitigation, including protecting wetlands.

The State provides technical and financial assistance to local governments to implement these State laws. However, assistance is given through request. Even though

Washington State has adequate laws and regulations, the ability to meet this management measure is directly related to staff and fiscal resources available to both local and state governments. No guarantees can be made that adequate funding will be available.

Additional needs to meet this management measure

None

Actions to satisfy this management measure

Adequate laws and regulations are in place and no additional actions are needed.

Additional actions to improve water quality

None needed

Management Measure IIB:

Restore Wetlands and Riparian Areas

Description from Federal Guidance

Promote the restoration of the pre-existing functions in damaged and destroyed wetlands and riparian systems in areas where the systems will serve a significant NPS pollution abatement function.

1995 Finding from EPA and NOAA

The findings can be found in the general description of Loss of Aquatic Ecosystems.

Existing Statute(s) and Regulations

Chapter 197-11 WAC
Environmental Restoration Act (Chapter 43.21J RCW)
Salmon Recovery Act (Chapter 75.46 RCW)
Shoreline Management Act (Chapter 90.58 RCW)
Chapter 173-16 RCW
Environmental Mitigation (Chapter 90.74 RCW)
Wetlands Mitigation Banking (Chapter 90.84 RCW)

Description of Current Program

The State Environmental Policy Act checklist has an extensive section on the impacts of projects on water bodies, especially wetlands and riparian areas. State policy requires that there be no net loss of environmental benefit from these areas, and requires substantial mitigation. Permits under the Hydraulic Code and Shoreline Management Act often contain conditions regarding protection and mitigation of wetlands and riparian areas. Further clarification and requirements are found in the Environmental Mitigation Act.

The Growth Management Act requires local governments to designate and protect critical areas, which included wetlands and riparian areas. Ordinances protecting these areas from degradation are also required of each city and county. In addition, county commissioners are authorized to purchase sensitive lands, including wetlands and riparian areas, for conservation purposes in RCW 36.32.570.

The Department of Community Trade and Economic Development oversees implementation of the Growth Management Act. However, the act itself is implemented at the local level. Also implemented at the local level is the SEPA, Shoreline Management, and environmental mitigation, including wetlands protection.

The State provides technical and financial assistance to local governments to implement these State laws. However, assistance is given through request. Even though Washington State has adequate laws and regulations, the ability to fully protect and restore state wetlands is directly related to staff and fiscal resources available to both local and state governments. No guarantees can be made that adequate funding will be available.

Active restoration programs exist for both wetlands and riparian areas within Washington. Wetlands restoration generally is a result of mitigation from development projects. Projects must restore or replace two acres of wetlands for every acre degraded, providing a net environmental benefit. In addition, agencies and businesses can combine mitigation requirements to create large, environmentally significant wetlands under Wetlands Mitigation Banking. This is expected to increase the functionality of the state's wetlands over piecemeal mitigation.

Ecology is currently implementing a watershed-based wetlands restoration projects for Puget Sound river basins. This effort identifies potential wetland restoration sites and the functions each site could provide, if restored. As watersheds or locally based restoration programs are implemented, this information will be integrated with other water quality and habitat objectives.

Many groups across the state are involved in riparian restoration. Five State agencies currently provide grants to local groups:

- Conservation Commission (Fishers' Habitat Grants and grants to local conservation districts)
- Department of Ecology (Centennial Clean Water Grants)
- Department of Natural Resources (Jobs for the Environment)
- Department of Fish and Wildlife (Fish Habitat Restoration Grants)
- Interagency Committee for Outdoor Recreation (Riparian Restoration Grants)

A key tool to further implement on agricultural lands is the CREP program administered by the NRCS. Over \$200 million is available to assist landowners with restoration efforts in riparian areas.

A recent study was done gauging the effectiveness of the Jobs for the Environment program, which has existed for about five years. Within this time, this program has:

- administered over \$20 million in grants for riparian restoration
- replaced 283 culverts, opening 173 of upstream fish habitat
- placed 3,291 large woody debris/habitat structures
- built 252 miles of riparian and pasture fencing
- planted 769 miles of riparian areas
- stormproofed or "put to bed" 501 miles of roads

It is expected that riparian restoration will increase under the Salmon Recovery Act.

The Puget Sound Plan has three goals for Wetlands and Fish and Wildlife Habitat Protection:

- Establish and coordinate federal, tribal, state, and local programs to protect wetlands and habitat.
- In the short term, achieve no net loss of wetlands function and acreage of aquatic, riparian, and other habitat important to water quality protection.
- In the long term, achieve a measurable net gain of wetlands function and acreage and a net gain of aquatic and riparian habitat and other habitat important to water quality protection.

Additional needs to meet this management measure

None

Actions to satisfy this management measure

Adequate laws and regulations are in place and no additional actions are needed.

Additional actions to improve water quality

None needed

Management Measure Number IIC:

Vegetative Treatment Systems

Description from Federal Guidance

Promote the use of engineered vegetated treatment systems such as constructed wetlands or vegetated filter strips where these systems will serve a significant NPS pollution abatement function.

Findings from EPA and NOAA

The findings can be found in the general description of Loss of Aquatic Ecosystems.

Existing Statute(s) and Regulations

Growth Management Act (Chapter 36.70A RCW)
State Environmental Policy Act (Chapter 43.21C RCW)
Chapter 197-11 WAC
Environmental Restoration Act (Chapter 43.21J RCW)
Hydraulic Code (Chapter 75.20 RCW)
Chapter 220-110 WAC
Shoreline Management Act (Chapter 90.58 RCW)
Chapter 173-16 RCW
Draft State Stormwater Manual

Description of Current Program

Washington State promotes the use of intact riparian areas, wetlands, and natural buffers for helping to protect surface water from polluted runoff. However, in place in Washington State is an antidegradation policy that prohibits polluted discharges into state's waters, including wetlands. Thus the use of wetlands and riparian areas as treatment systems is limited.

Aside from the above, the state does promote the use of bioengineering for constructed wetlands. Bio-engineering is defined as using trees, shrubs, and other natural vegetation, a definition essentially similar to the "vegetative treatment systems" in this management measure. This preference is reflected in reviews under the State Environmental Policy Act, as well as permits under the Hydraulic Code and Shoreline Management Act.

"Bio-engineering is the preferred method of bank protection where practicable." WAC 220-110-080

Washington State's water quality standards are used by Ecology to protect and maintain beneficial uses when issuing permits (such as National Pollutant Discharge Elimination System (NPDES) permits that set limits on discharges to surface waters), conditioning permits (such as federal permits affecting state waters), and reviewing proposed projects to ensure that water quality of surface waters is protected. These responsibilities usually are carried out on a site-specific basis when reviewing individual projects or permit applications. These permits and reviews cover a wide range of activities, including discharging wastewater and stormwater, filling wetlands, construction activities requiring short-term standards modifications, aquatic herbicide applications, activities reviewed under the State Environmental Policy Act (SEPA), and activities regulated under the Shoreline Management Act.

Ecology staff, in issuing permits and reviewing development projects, determine if the project or permit will meet the water quality standards. These guidelines assist the project reviewer in making that determination for proposed projects that will affect wetlands. Further, the guidelines aim to ensure the equitable and consistent regulation of activities which have the potential to degrade or destroy the water quality of a wetland. Consistent application of the water quality standards on a statewide basis will contribute to the protection of the state's important wetland resource.

Publication #92-10, Wetland Buffers: Use and Effectiveness, is a report that summarizes and evaluates scientific literature, an agency survey, and a recent field study on the use and effectiveness of vegetated wetland buffer zones in reducing the impact of adjacent land use on wetland ecosystems. Published literature was obtained from several sources and contains information from throughout the country on the concept of wetland buffers, their important functions, effective buffer widths, and buffer determination models. The agency survey reviewed buffer requirements of several states throughout the U.S. and for counties and cities in Washington. The field study reviewed the current state of buffers at several sites in King and Snohomish counties. The report is available to local governments and others interested in using wetland buffers for ecosystem protection.

Additional needs to meet this management measure

None needed

Actions to satisfy this management measure

Adequate programs and processes are in place to satisfy this management measure.

Additional actions to improve water quality

No additional actions are necessary to implement this management measure.

LAKES

There are no specific management measures to address under 6217. However, Washington is actively engaged in lake management.

BACKGROUND

The need for a guaranteed, ongoing lake program is validated by increasing requests from local citizens for assistance for a myriad of lake associated problems. Local sponsors continue to submit applications for grant funds for Phase I and Phase II projects. Ecology's lake restoration program modeled after EPA's discontinued Clean Lakes Program has proven to be a very effective approach for solving in-lake and lake-associated watershed problems.

By carefully adhering to the guidance of the lake restoration program, the requirements of establishing TMDLs have been fulfilled. Criteria and loading rates have been set and the in-lake and watershed methods for achieving and maintaining the criteria have been adopted by the local sponsors.

Grant funds for cleaning up lakes are now available through EPA 319 nonpoint funds and the Centennial Clean Water Fund. Since federal Clean Lakes Funds (Section 314) have not been appropriated by Congress since 1995, EPA has provided guidance that makes it very clear that the states should utilize 319 funds for Phase I and Phase II lake restoration projects.

A dependable source of lake restoration funds has shown far-reaching benefits for lake programs throughout the state. The drying up of funding from both 314 and the state has resulted in counties reducing their lake activities staff, state universities paring back their limnology and lake management programs, and a reduction in momentum for new projects throughout the state. Also, the regular funding of lake restoration projects has proven been a very effective 'seed' source for projects around the state. During years when funding prospects were good, applicants included Indian tribes, conservation districts, sewer and water districts, special use districts, counties, state agencies and universities. Currently, the only applicants are the two or three larger counties that can afford to fund ongoing lake outreach programs.

LAKE MANAGEMENT AND NONPOINT POLLUTION

Much work has been done to remove fecal contamination, metals and other contaminants from point sources discharging to streams. However, there has been relatively little focus on phosphorus loading to lakes and streams. Relatively high concentrations of phosphorus may not cause chemical or biological upsets of the streams. However, as soon as streams enter lakes, the longer water residence time and high available light allow algae to rapidly grow to their full potential, taking advantage of all the nutrients available. While streams are in a constant flushing mode, lakes act like a sink, storing phosphorus in the sediments that can later recycle back into the water column.

As lakes have become more and more impacted by anthropogenic sources, the need to monitor their water quality has become more important. Lake water quality data come from various county monitoring programs, Ecology's volunteer lake monitoring program, Ecology's intensive lake monitoring program and Phase I and II Lake Restoration projects (initiated prior to 1995).

EFFORTS TO IMPROVE LAKE WATER QUALITY

There needs to be a concerted effort to implement WAC 173-201A-030(6), the establishment of lake nutrient (phosphorus) criteria. Establishment of criteria for individual lakes will provide a sounder and more legally defensible baseline, which will trigger protective mechanisms for those lakes when the numeric criteria are violated.

Besides the need to correct existing lake water quality problems, there is also the opportunity for comprehensive planning at the local level to protect lakes against impacts from future watershed developments. Prevention of problems will always be much more practical and less expensive than treatment of an existing problem.

A statewide lakes management program would address these needs:

- continuance of Ecology's volunteer and intensive monitoring program;
- development of a comprehensive utilization of monitoring data to help direct the future course of lake protection efforts;
- establishment of a coordinated education program;
- comprehensive plans to protect lakes against development pressures;
- implementation of the ecoregional phosphorus criteria;
- development of TMDLs for completed lake restoration projects;
- a centrally-located clean lakes coordinator;
- funding for Phase II (implementation) projects which have completed Phase I (planning) projects; and
- funding for lakes that have been degraded or are in danger of being degraded, by nutrients from either the watershed or in-lake recycling.

Additional Actions to Improve Water Quality

• Develop and implement a statewide lakes management program using the needs identified above (LAE 5)

Estuaries and Nearshore

There are no specific management measures to address under 6217, however, Washington State is actively engaged in management of estuarine and nearshore environments.

Background

A description of estuaries and nearshore can be found in Chapter 2. This section will detail some of the reasons for the loss of estuaries and nearshore habitat.

Of the state's 3700 miles of shoreline, more than 800 miles in Puget Sound have been modified by human development, causing a decline in the acreage of the nearshore and its overall health. Residential and commercial development at the shoreline has a tremendous effect on the nearshore. Clearing vegetation from the shoreline and immediate upland areas contributes to erosion problems and increases the amount of surface water runoff.

In Nearshore Habitat Loss in Puget Sound: Recommendations for Improved Management (Brian Lynn, 1998), a number of factors were identified that contributed to habitat loss:

- shoreline armoring
- landfilling
- diking and channeling
- dredging
- in-water structures
- clearing and grading
- nutrient enrichment
- exotic species
- water pollution
- shifts in water flow regimes
- recreational harvest

Nonpoint Pollution and Estuary Management

Some of the problems associated with these include: beach erosion, physically displacing and destroying algae and other marine vegetation, change in salinity and water regimes, reduction of species abundance, displacement of native species, and contamination and degradation of nearshore habitats resulting in loss of food source and cover. There are a number of other problems generated by the above list.

Source Control Strategy

The National Estuary Program was established in 1987 by amendments to the Clean Water Act to identify, restore, and protect nationally significant estuaries of the United

States. Unlike traditional regulatory approaches to environmental protection, the NEP targets a broad range of issues and engages local communities in the process. The program focuses not just on improving water quality in an estuary, but on maintaining the integrity of the whole system -- its chemical, physical, and biological properties, as well as its economic, recreational, and aesthetic values.

The National Estuary Program is designed to encourage local communities to take responsibility for managing their own estuaries. Each NEP is made up of representatives from federal, State and local government agencies responsible for managing the estuary's resources, as well as members of the community -- citizens, business leaders, educators, and researchers. These stakeholders work together to identify problems in the estuary, develop specific actions to address those problems, and create and implement a Comprehensive Conservation and Management Plan (CCMP) for protecting the estuary and its resources.

In Washington, two estuaries are part of the NEP: The Puget Sound and the Lower Columbia River. The Puget Sound Management Plan and The Lower Columbia River Estuary Plan have both been approved as a Comprehensive Conservation and Management Plan. Other estuaries in need of planning are the Willapa Bay and Grays Harbor estuaries.

Additional Actions to Improve Water Quality

The statewide nonpoint plan has adopted a number of Salmon Recovery early actions that pertain to estuary management.

Education and Building Stewardship

Education about nonpoint pollution is a challenge. It must target both specific and general audiences. It should inform and inspire. It needs to reach youth and adults.

Description of Current Program

Nonpoint education comes from many current sources - local governments, State agencies, Cooperative Extension, conservation districts, nonprofit organizations. For voluntary BMPs, education is our most effective tool, indeed our only tool to raise people's awareness and change their behavior.

Additional Actions to Improve Water Quality

With input from the many entities who successfully conduct nonpoint education, both formal (K-12) and informal ("public" education), Ecology has compiled a list of activities and projects that we recommend adding to our current efforts, mostly within the next five years.

To implement these ideas, we will need to find a secure source of funding that's larger than current levels. Many of these recommendations come from the Salmon Recovery Plan Early Actions.

Program development

- Develop a resource library of model materials and success stories.
- Distribute or provide easy access to information on funding sources for salmon recovery and on funds expended on salmon recovery efforts.
- Implement the H₂O Home to Ocean program similar to a program currently in California, which educates the public about wise use and proper disposal of pesticides.
- Develop and implement site-specific public education plans for parks with significant salmon resources.

Programs for schools

- Conduct a series of watershed-specific PROJECT WET teacher workshops on Watersheds for People and Salmon, focusing on pollution prevention, water conservation, habitat, and public health.
- Complete Columbia Watershed curriculum for youth and adults, for better understanding and stewardship in the Columbia Basin

- Expand "Magic Apple" grants to fund exemplary teachers' water quality class projects.
- Sponsor one new community Water Festival per year, for 4th graders.

Public education programs

- Manage the Puget Sound Public Involvement and Education "PIE" fund program to develop innovative education programs.
- Fund small water quality education grants statewide.
- Produce outreach campaigns and materials for narrowly focused groups such as septic system owners - establish awards programs where appropriate, to tell "success stories."
- Develop and disseminate educational materials, fact sheets, and other items.

Volunteer Programs

- Introduce and support Master Watershed Steward programs throughout the state.
- Develop and implement education/outreach and volunteers strategy.
- Support Watch over Washington's website for volunteer monitors and provide technical help to local groups and classrooms.
- Train, direct, and equip volunteer monitors.
- Establish an online, central repository for volunteers' data of known quality.

Chapter 6

A Cooperative Approach to Improving Water Quality

Water Quality Partners: Working with Local, State, Tribal, and Federal Agencies

The complexities of Washington environments and the mandates of the various entities to protect water quality and other resources are many. Even though agencies have individual mandates, it is imperative that these entities work together to solve water quality problems. Many of the programs identified in this plan call for joint efforts. This chapter details both the individual nature of the agencies, as well as the reason a unified approach is necessary.

Local Governments

Many State laws are implemented by local governments, with State agencies in an oversight and/or support role. With regard to the environment, local governments and special districts have primary authority or major implementation efforts in:

- solid waste management
- growth management and land use
- stream restoration and rehabilitation
- sewage systems, both on- and off-site
- road construction and maintenance
- shorelands management
- stormwater management
- provision of drinking water
- used oil and household toxics
- irrigation water and return flows.

The three basic forms of local government in Washington State are:

- 1. Counties
- 2. Cities
- 3. Special purpose districts

The 39 counties of Washington were established by acts of the legislature, and are considered subdivisions of State government. Basically, the county was designed to serve as an administrative unit of the State in rural areas. The same holds true for cities and special purpose districts. As subdivisions of State government, all three are called upon to implement State legislative mandates.

Prior to 1960, several types of districts were formed to help with environmental protection:

- conservation districts
- health districts
- water districts
- sewer districts
- public utility districts

Since 1960, many new types of special purpose districts have been authorized by the legislature, especially with regard to environmental protection. These new environmentally-oriented districts include:

- ground water protection districts
- lake protection districts
- shellfish protection districts
- solid waste management districts

State Agencies

Washington's constitution divides State government into three branches: the executive, the legislative, and the judicial. However, the structure of each of these branches is distinct from the federal model in many ways. Probably the most significant difference is in the executive branch, which actually consists of nine elected officials. Although the Governor is considered chief executive, he does not have authority over the other eight elected officials. The other positions with elected executive officers are:

Lieutenant Governor Secretary of State
State Auditor State Treasurer

Attorney General Commissioner of Public Lands (DNR)

Superintendent of Public Instruction Insurance Commissioner

As another limitation, the Governor does not appoint all State agency executives. Many of these are appointed by independent commissions. Some of the areas of government or agencies with commission-appointed executives include:

Conservation Commission

Fish and Wildlife

Outdoor Recreation

Parks and Recreation

Transportation

Universities and Colleges

Utilities and Transportation

These commissions, including the Commissioner of Public Lands, have an impact on the State's natural resources, and specifically on nonpoint pollution, but are not accountable to the Governor. The Directors of Ecology, Department of Agriculture and the Puget Sound Action Team are the only resource agencies reporting to the Governor. All these

agencies are under close scrutiny by the public through the Public Disclosure Commission.

The greatest impact from State agencies on public policy is from regulations they promulgate, their technical assistance programs, and from the grants of legislatively-appropriated money that they award, to carry out tasks mandated by statutes.

Grants

Grant programs related to the environment include:

- Centennial Clean Water for projects aimed at improved water quality, including the construction of sewage treatment plants and the control of nonpoint pollution
- Local Toxics (Coordinated Prevention Grants) for solid and hazardous waste management
- Jobs for the Environment (administered by DNR) and Fisher Habitat Grants (administered by the Conservation Commission) for stream restoration projects
- Watershed Planning Grants for watershed planning and implementation

Grants to businesses, individuals, and non-profit organizations, as opposed to public entities, are limited by both the State constitution and various statutes. State agencies can use this "carrot and stick" approach to achieve compliance with State law by local governments.

Technical Assistance

State agencies provide technical assistance to local governments, tribes, and to each other in the implementation of environmental programs. Many agencies have extensive programs which provide in-kind technical assistance. In some cases, they must provide technical assistance before taking an enforcement action.

Enforcement

Washington has actively sought delegation to implement federal programs and legislation from the federal government in an effort to maintain State control of resource management concerns. Examples include the Federal Clean Water and Safe Drinking Water Acts. Enforcement is used by several agencies and by local governments to ensure compliance with water quality regulations. Though many programs are voluntary in nature, there is a need to have a regulatory backstop to encourage those who are not complying with basic requirements of environmental protection.

Washington State Tribes

Under treaties signed with the US Government, many tribes in Washington State have retained rights to fish, hunt, and gather on and off reservations lands. These off-reservation lands are considered the tribes' usual and accustomed (U&A) lands. Thus, the tribes have direct management concerns with the preservation and maintenance of fisheries, wildlife habitat, and water quality in those off-reservation ceded lands.

The State and federal agencies are bound under the Supremacy Clause of the Constitution of the United States, Article VI, Clause 2 to observe and carry out the provisions of the treaties of the United States.

Since there is a common concern of the tribes and agencies for the protection and preservation of the natural environment in Washington, a Coordinated Tribal Water Quality Program was established that gives tribes a strong say in how water quality will be managed. Tribes are involved with TMDL studies, the 303(d) listing process, and watershed planning at the local level.

In 1989, the 26 federally-recognized Indian tribes in Washington and the Governor signed the Centennial Accord "to better achieve mutual goals through improved relationships between their sovereign governments." The accord is intended to build confidence among parties in a government-to-government relationship by outlining a process for implementing the accord. It has improved coordination and communication through education and protocols, and has been particularly important in issues related to water quality, water use, and salmon restoration.

Federal Agencies

There are many federal agencies in Washington that operate with different mandates and responsibilities. This is in large part due to the diversity and complexity of Washington's natural environment.

For example, the strategic location of the Puget Sound region makes it an ideal home for several military installations such as Fort Lewis, Puget Sound Naval Shipyard, Bangor submarine base, and Whidbey Island Naval Air Station. The Puget Sound region is surrounded by US Forest Service lands and the Olympic National Park.

The Palouse region of eastern Washington is the home of some of the most productive non-irrigated agricultural lands found anywhere in the United States. These lands are in close proximity to the Snake and Columbia rivers. Interested federal agencies are the Natural Resource Conservation Service (NRCS), Farm Service Agency (FSA), The Bureau of Reclamation, Bonneville Power Administration (BPA), and the Army Corps of Engineers (COE).

The Yakima Valley is another good example of federal agency presence. Not only are NRCS and FSA actively engaged with agricultural activities, the Bureau of Reclamation

(BOR), the Corps of Engineers, and Bonneville Power all have responsible roles and mandates. In addition, the US Army's Yakima Firing Range is one of the largest military bases in the United States.

These are a few examples of the roles federal agencies play in using and managing State lands. Federal agencies are the second largest group of landowners in the state (next to private individuals) — and a major source of funding for cost share and restoration efforts. The total acreage of the state is 45,645,269 acres. The following figure shows overall land ownership, and thus the important role federal agencies have in protecting Washington's environment.

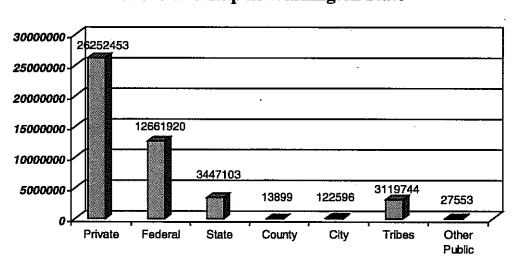


Figure 6.1
Land Ownership in Washington State

List of Federal Agencies and Responsibilities

Many federal agencies in Washington State either contribute to nonpoint source pollution, or help control nonpoint source pollution through their water quality programs – or both.

- US Forest Service USFS has large holdings in the state, and participates in the Timber, Fish, and Wildlife forum.
- Bureau of Land Management BLM has relatively small holdings within the state on which grazing activities occur.
- Department of Energy DOE manages the Hanford Reservation and key hydroelectric dams.
- Department of Defense DOD has several bases in Washington, due to the strategic location of the state and its access to the Pacific Rim.

- Army Corps of Engineers COE is responsible for maintenance of harbors and navigable waterways and wetlands management. COE operates and maintains many large dams along the Columbia and Snake Rivers.
- Bureau of Reclamation BOR owns and manages hundreds of miles of irrigation canals in eastern Washington.
- Natural Resource Conservation Service NRCS provides financial and technical assistance to landowners in developing and implementing conservation practices.
- The National Park Service NPS owns thousands of acres of parkland, including Mt. Rainer National Park, Olympic National Park, and North Cascades National Park.
- National Marine Fisheries Service NMFS oversees the status of endangered fish species.
- Federal Highway Administration FHA has hundreds of miles of highways in Washington State.
- Bonneville Power BPA controls numerous dams along the Columbia and Snake Rivers.
- Geological Survey USGS routinely monitors both surface and ground water through their National Water Quality Assessment Program.
- Fish and Wildlife Service FWS is responsible for habitat conditions related to the health and well-being of fish and wildlife. FWS works to protect ESAlisted resident fish such as bull trout and cutthroat trout.

Chapter 11, Federal Consistency, details the process by which federal agencies will be involved in the State's nonpoint management plan. Ultimately, federal agencies will be called upon to support State efforts by implementing their programs in a manner consistent with Washington State goals and objectives.

Matrix of Agency Responsibility

State, Federal and Other Selected Agencies

This matrix of agency responsibility shows programs and activities that each agency actively implements to control nonpoint sources of pollution. It is an important tool in trying to understand the range of nonpoint source control activities, overlaps in responsibility, and where management gaps occur.

Table 6.1
Matrix of Agency Responsibility

Other Activities							State NPS Management Plan development and oversight, Education and outreach, Monitoring, TMDL development, Volunteer support,
Loss of Aquatic Ecosystems		Spartina and Purple loosestrife control	GMA development guidelines and technical assistance; critical areas designation			,	Statewide wetland policy; Technical assistance; Lake restoration funding; Aquatic pesticide control
Hydromod						Sewage	Conducts 401 certifications; Oversees the shoreline management act; Regulates dam construction
Recreation							Reviews facilities siting
Urban		Pesticide use, Home-to- Ocean, Pest Control	GMA development guidelines and technical assistance		Technical assistance to counties on transportation issues	On-site sewage standards; evaluates new technologies for on-site sewage	Erosion control, Pollution prevention, Runoff; Funding on-site sewage programs; air quality of sediments on roads, highways, and bridges
Forestry		Pesticide use		Technical assistance, grants to CDs			Rule development; Wetlands policy; Landscape TMDLs; Small landowners assistance; shoreline management, smoke management
Agriculture		Pesticide use licensing and containment, Chemigation and Fertigation; Promotes watershed stewardship; Collects unusable pesticides from farmers	GMA development guidelines and technical assistance	Technical assistance; Grants to CDs;Facilitates local/State/ federal partnerships		Pesticides	Implements Dairy Nutrient Management Act; Pesticides; Water rights; Enforcement; Technical assistance; funding; assistance for air quality issues
Nonpoint Category	State Agencies	WSDA	CTED)	CRAB	рон	ECY

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							Grants and loans.
WDFW	Technical assistance on habitat issues; HPA enforcement; assists with riparian standards	Consultation; HPA issuance and enforcement	нРА	НРА	HPA issuance and enforcement, In- stream habitat	Mitigation, Enhancement, funding	
IAC				Off-road vehicle policy, funding			Salmon recovery funding
PSWQAT	PS Plan to control ag source pollution through 400-12 planning and elements of the Agriculture Program of the Puget Sound Plan	PS Plan to address forest practices through local 400-12 planning	Maintains and updates policies for on-site sewage, shellfish, and stormwater planning in Puget Sound; facilitates tech assistance to locals		Maintains and updates policies on wetlands and habitat protection for Puget Sound; facilitates tech assistance to locals	Maintains and updates policies on wetlands and habitat protection for Puget Sound; facilitates tech assistance to locals	
DNR	Grazing	Issues forest practices permits; Enforces forest practice rules; Carries out watershed analysis; Educates forest landowners; provides forest management assistance to communities		Trails	Riparian Habitat	Wetlands mitigation	
Parks	Grazing, Weed Management	Arbor Crew	Runoff, On-site	Sewage, access, marinas	Shoreline access, Riparian habitat	Mitigation	
CE	Water Quality education, BMP education; develops new BMPs	BMP education to small, non-industrial landowners	Home-a-syst; landscape and residential BMPs; provides educational outreach to general public			BMP education	1
WSDOT			Roads, bridges, runoff			Mitigation	
Federal Agencies							
USFS	Harvest, Roads, Runoff	Watershed analysis on federal forestlands; financial assistance to small non-industrial forest landowners		Off-road	Habitat	Protection	
NRCS	Technical assistance;	Technical assistance				Protection	

NMFS **USGS**

FWS

BPA NPS FHA

DOD

BLM

EPA

Special Districts

Counties